PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RETMA MEMBER
RADIO-ELECTRONICS-TELEVISION MANUFACTURERS ASSOCIATION

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type knobs from the front.
2. Remove 9 wood screws and the rear cover.
3. Remove 2 wood screws holding control bracket to the front of the cabinet.
4. Remove 2 speaker leads.
5. Remove 5 chassis bolts from the bottom.
6. Remove the chassis.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

MODEL MC-VQ21 (Ch. VQ21)

TRADE NAME	Andrea	MODELS	CHASSIS
		B2LB-VQ21, C-VQ21, E2LB-VQ21, F2LB-VQ21, LB-VQ21, MC-VQ21, T-VQ21, 2LB-VQ21	VQ21
MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, N.Y.		
TYPE SET	Television Receiver		
TUBES	Twenty-three		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 240 Watts, 2.2 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Remove 8 push-on type knobs, 2 wood screws and front panel. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 8 push-on type knobs, 2 wood screws and wooden panel. Remove safety glass and mask.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A8) located on bottom of chassis.

FUSES

Two fuses are used. One for horizontal sweep circuit protection, and one for LV power supply protection. (For location see tube placement chart).

CENTERING

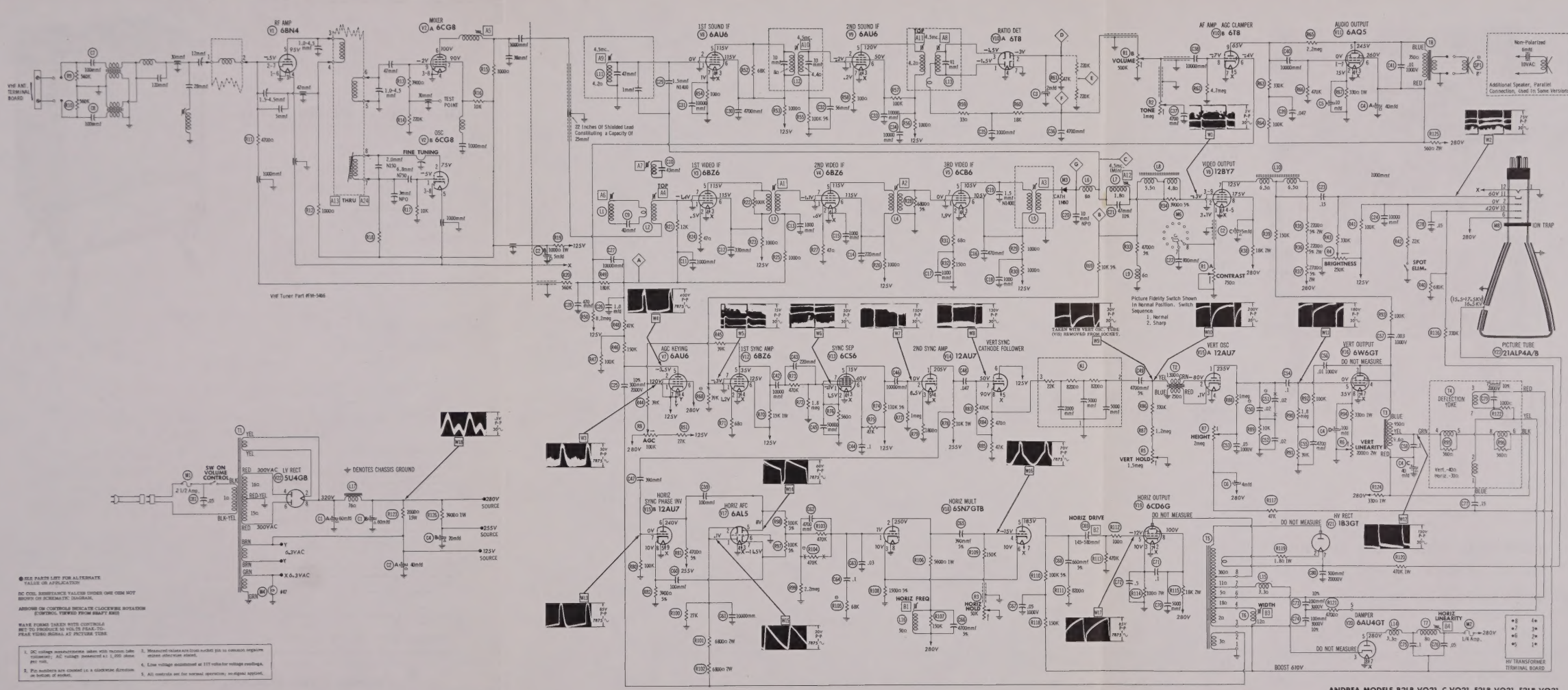
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

ANDREA MODELS B2LB-VQ21, C-VQ21, E2LB-VQ21, F2LB-VQ21, LB-VQ21, MC-VQ21, T-VQ21, 2LB-VQ21 (Ch. VQ21)

FOLDER 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

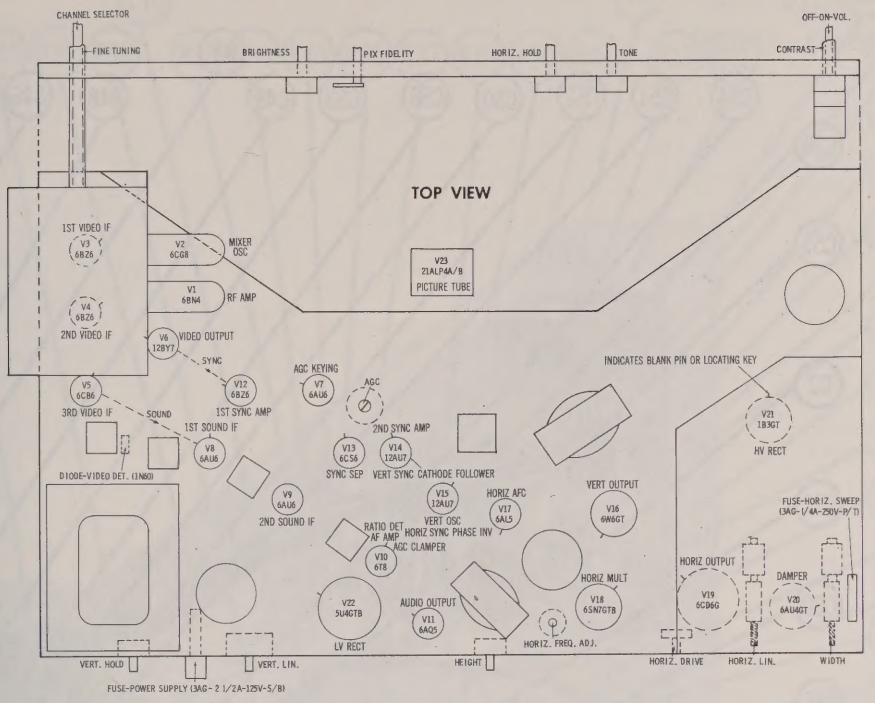
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


RF AMP V1 6BN4
MIXER V2A 6CG8
OSC V2B 6CG8
FINE TUNING
TEST POINT
VHF ANT. TERMINAL BOARD
VHF Tuner Part #5M-5486
22 Inches Of Shielded Lead Constituting a Capacity Of 25mmf
1ST SOUND IF V8 6AU6
2ND SOUND IF V9 6AU6
TOP
RATIO DET V10A 6T8
AF AMP AGC CLAMPER V10B 6T8
AUDIO OUTPUT V11 6AQ5
VOLUME 500K
TONE 1meg
Non-Polarized 6mfd 10VAC
Additional Speaker, Parallel Connection, Used In Some Versions
1ST VIDEO IF V3 6BZ6
2ND VIDEO IF V4 6BZ6
3RD VIDEO IF V5 6CB6
CATH (MID)
VIDEO OUTPUT V6 12BY7
ION TRAP
BRIGHTNESS 250K
CONTRAST 750Ω
SPOT ELIM.
Picture Fidelity Switch Shown In Normal Position. Switch Sequence. 1. Normal 2. Sharp
PICTURE TUBE V22 21ALP4A/B
AGC KEYING V7 6AU6
1ST SYNC AMP. V12 6BZ6
SYNC SEP V13 6CS6
2ND SYNC AMP. V14 12AU7
VERT SYNC CATHODE FOLLOWER
TAKEN WITH VERT OSC. TUBE (V15) REMOVED FROM SOCKET.
VERT OSC V15A 12AU7
VERT OUTPUT V16 6W6GT
DO NOT MEASURE
HEIGHT 2meg
VERT HOLD 1.5meg
VERT LINEARITY 2000Ω 2W
DEFLECTION YOKE
Vert. -40Ω Horiz. -32Ω
HORIZ SYNC PHASE INV V15B 12AU7
HORIZ AFC V17 6AL5
HORIZ MULT V18 6SN7GTB
HORIZ DRIVE
HORIZ OUTPUT V19 6CD6G
DO NOT MEASURE
HV RECT V21 1B3GT
HORIZ FREQ
HORIZ HOLD 50K
WIDTH
DAMPER V20 6AU4GT
HORIZ LINEARITY
HV TRANSFORMER TERMINAL BOARD
BOOST 610V
SW ON VOLUME CONTROL
LV RECT V22 5U4GB
DENOTES CHASSIS GROUND
280V SOURCE
255V SOURCE
125V SOURCE
6.3VAC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK VIDEO SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured w.r.t. 1,000 ohms per volt.
2. Pin numbers are counted i.e. a clockwise direction at bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ANDREA MODELS B2LB-VQ21, C-VQ21, E2LB-VQ21, F2LB-VQ21, LB-VQ21, MC-VQ21, T-VQ21, 2LB-VQ21 (Ch. VQ21)

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

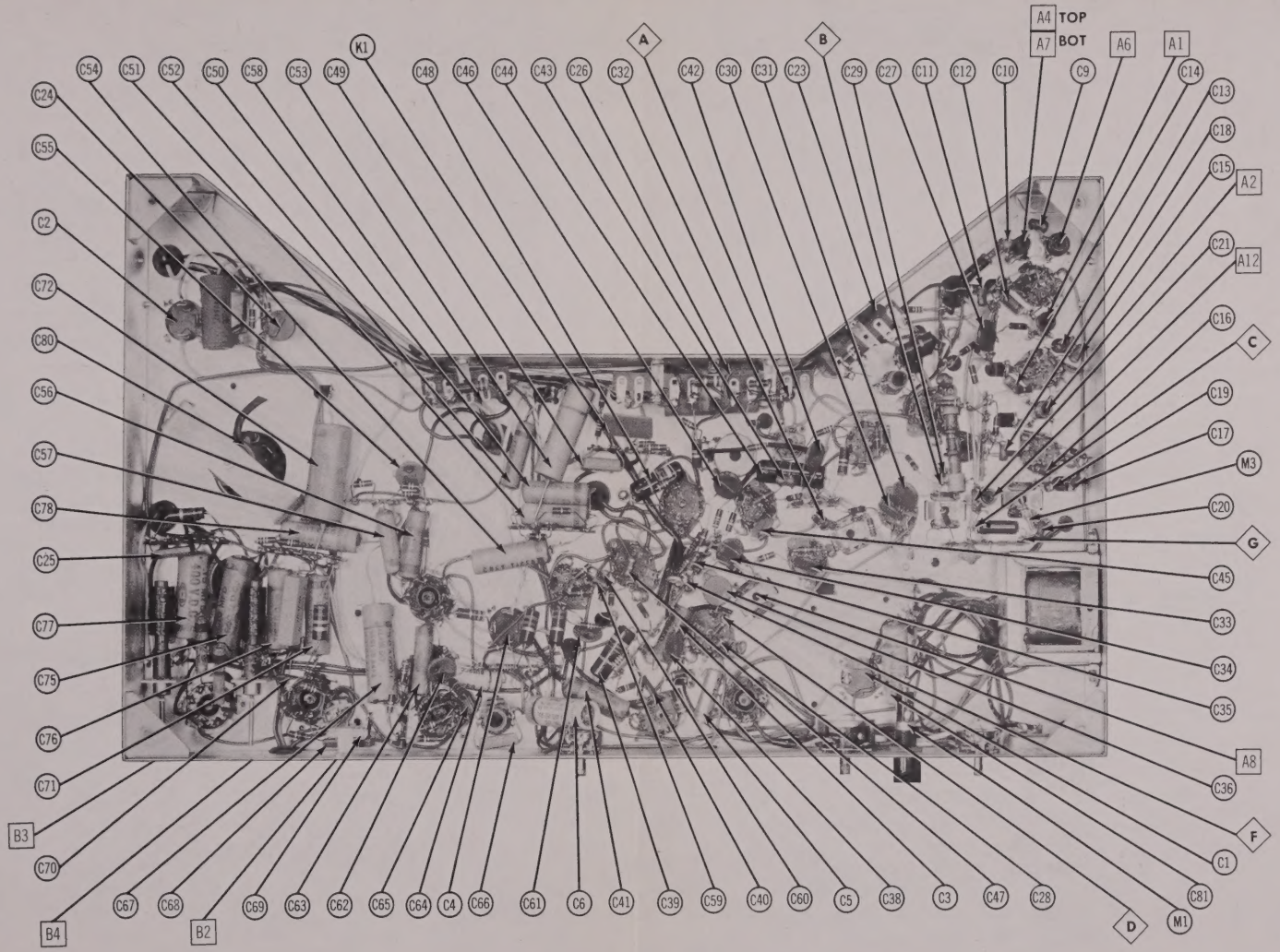
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V22**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M3)**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V23**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7, V10**

SYNC FAILURE
No vert. sync - **V12, V13, V14**
No horiz. sync - **V12, V13, V14, V15, V17**
No vert. or horiz. sync - **V12, V13, V14**

SWEEP FAILURE
No raster, has sound - **Fuse (M2), V17, V18, V19, V20, V21, V23**
No vertical deflection - **V51, V16**
Poor vert. linearity or foldover - **V15, V16**
Poor horiz. linearity or foldover - **V18, V19, V20**
Narrow picture - **V18, V19, V20, V22**
Vert. off freq. - **V15**
Horiz. off freq. - **V18**



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (A). Positive to chassis.
Attenuate sweep generator output to maintain 2 to 3 volts peak to peak on the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator outut lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6BZ6 (V3). Low side to chassis.	44.0MC	42.5MC 45.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis.	A1, A2, A3	Disconnect L2 from pin 1 of V3. Adjust A1 to place 45.75MC marker at 35% on curve as in Fig. 1. Adjust A2 for correct band-pass and maximum gain. 42.5MC marker should be at 20% on curve. Adjust A3 for flat topped response. Repeat these adjustments. Reconnect L2 to pin 1 of V3.
2.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.5MC 45.25MC 45.75MC 47.25MC	"	"	A4, A5	Adjust A4 for symmetrical response similar to Fig. 2.
3.	"	"	"	47.25MC	"	"	A6	Adjust to place 47.25MC marker in trap notch as in Fig. 2.
4.	"	"	"	41.25MC	"	"	A7	Adjust to place 41.25MC marker in trap notch. Repeat step 2.

SOUND IF ALIGNMENT

Connect two matched 220K (±1%) resistors in series from point (D) to chassis. The junction of these two resistors is alignment point (E) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.005MFD	High side to point (C). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (D). Common to chassis.	A8, A9, A10, A11	Use only enough generator output to provide usable indication on VTVM, not to exceed 8 volts DC. Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point (E). Common side to point (F).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Connect a clip lead from point (G) to chassis.
Connect sufficient bias voltage to point (A) to cut the IF amplifiers off.
Set contrast control fully counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.005MFD	High side to pin 2 (grid) of 12BY7 (V6). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (D). Common to chassis.	A12	Adjust for MINIMUM deflection. Remove clip lead from point (G) and chassis. Remove bias from point (A).

OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (B). Low side to chassis.	A13	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A14	
			201MC	199.25MC 203.75MC	11		A15	
			195MC	193.25MC 197.75MC	10		A16	
			189MC	187.25MC 191.75MC	9		A17	
			183MC	181.25MC 185.75MC	8		A18	
			177MC	175.25MC 179.75MC	7		A19	
			85MC	83.25MC 87.75MC	6		A20	
			79MC	77.25MC 81.75MC	5		A21	
			69MC	67.25MC 71.75MC	4		A22	
			63MC	61.25MC 65.75MC	3		A23	
			57MC	55.25MC 59.75MC	2		A24	

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

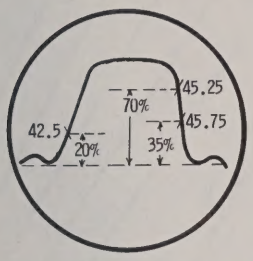


FIG.1

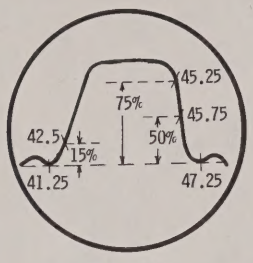


FIG.2

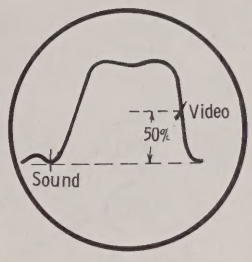
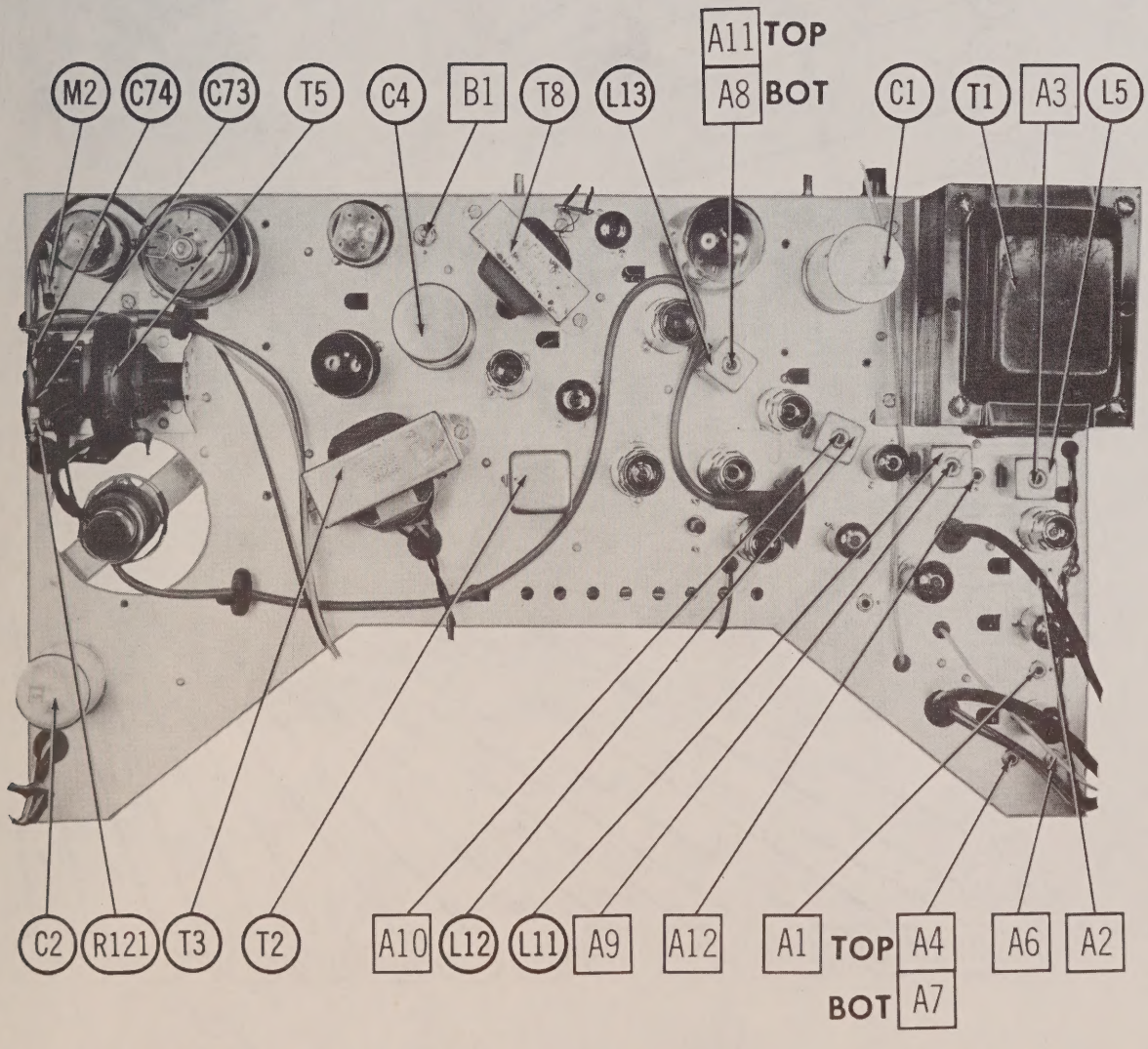


FIG. 3

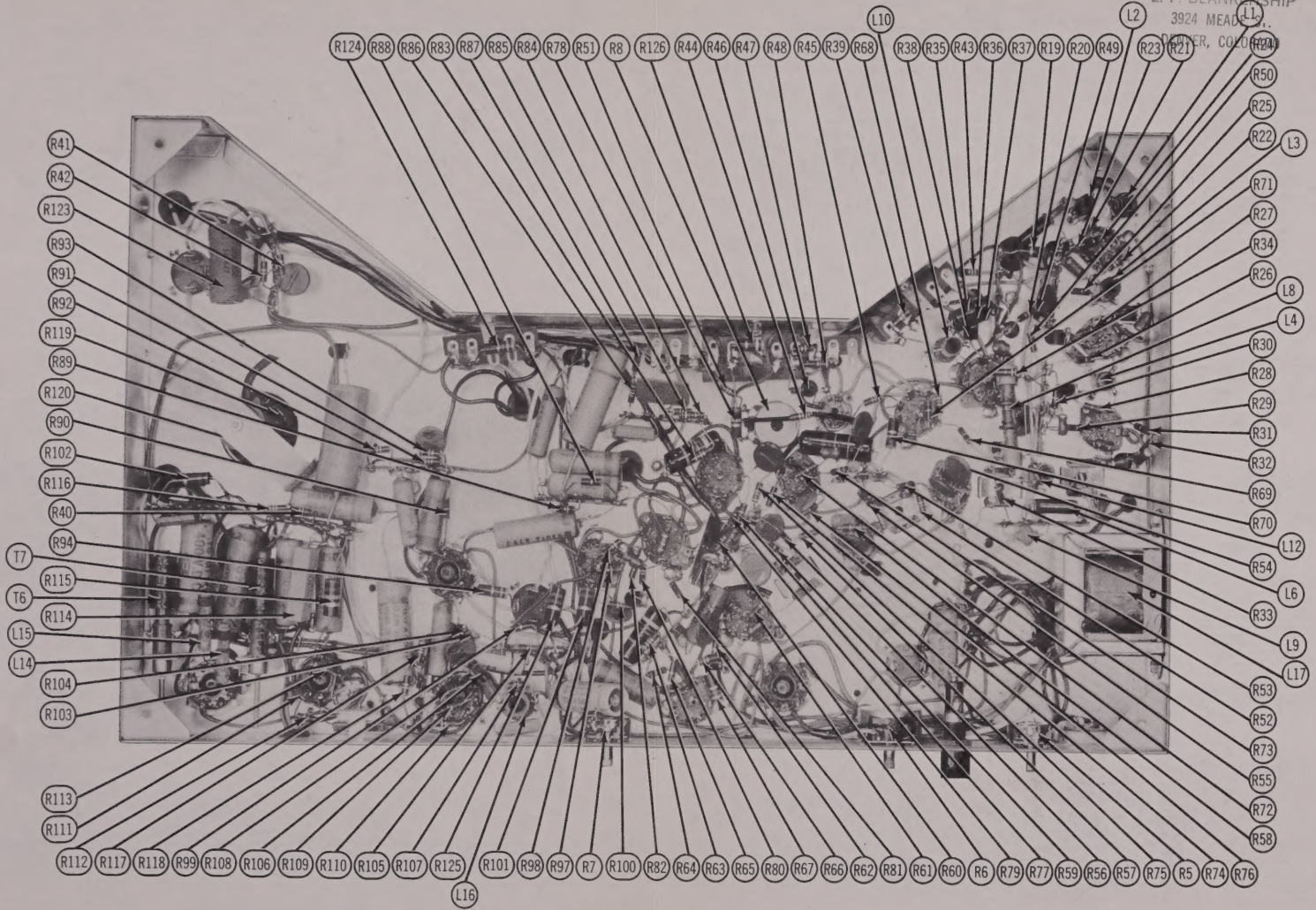


CHASSIS TOP VIEW

ANDREA MODELS B2LB-VQ21, C-VQ21, E2LB-VQ21, F2LB-VQ21, LB-VQ21, MC-VQ21, T-VQ21, 2LB-VQ21 (Ch. VQ21)

FOLDER 1

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	800K	0Ω	.1Ω	† 4000Ω	0Ω	800K		
V2	6CG8	10K	† 9800Ω	0Ω	0Ω	.1Ω	† 4000Ω	† 13K	0Ω	220K
V3	6BZ6	160K	47Ω	.1Ω	0Ω	† 3000Ω	† 3000Ω	0Ω		
V4	6BZ6	150K	47Ω	.1Ω	0Ω	† 3000Ω	† 3000Ω	0Ω		
V5	6CB6	.1Ω	218Ω	.1Ω	0Ω	† 4000Ω	† 4000Ω	0Ω		
V6	12BY7	• 130Ω	4700Ω	0Ω	.1Ω	.1Ω	0Ω	† 71000Ω	† 18K	0Ω
V7	6AU6	• † 30K	† 2000Ω	† 2000Ω	† 2000Ω	230K	† 0Ω	† 2000Ω		
V8	6AU6	4.2Ω	0Ω	.1Ω	0Ω	† 3000Ω	† 3000Ω	100Ω		
V9	6AU6	100K	0Ω	.1Ω	0Ω	† 3000Ω	† 100K	100Ω		
V10	6T8	INF	47K	INF	0Ω	.1Ω	300K	0Ω	4.7Meg	† 350K
V11	6AQ5	470K	330Ω	.1Ω	0Ω	† 910Ω	† 560Ω	470K		
V12	6BZ6	11K	68Ω	0Ω	.1Ω	† 15K	† 2000Ω	0Ω		
V13	6CS6	1.8Meg	560Ω	.1Ω	0 Ω	† 110K	† 50K	560Ω		
V14	12AU7	† 14K	1Meg	1800Ω	.1Ω	.1Ω	† 2000Ω	550K	47K	0Ω
V15	12AU7	• ‡ 2.3Meg	• 1.8Meg	250Ω	0Ω	0Ω	† 7600Ω	100K	3900Ω	.1Ω
V16	6W6GT	TP	0Ω	† 1300Ω	† 1300Ω	1.8Meg	TP	.1Ω	• 900Ω	
V17	6AL5	7500Ω	7500Ω	.1Ω	0Ω	2.3Meg	0Ω	2.3Meg		
V18	6SN7GTB	2.4Meg	† 5600Ω	1500Ω	• 170K	‡ 250K	1500Ω	.1Ω	0Ω	
V19	6CD6G	NC	.1Ω	100Ω	TP	470K	NC	0Ω	† 18K	TOP CAP ‡ 14Ω
V20	6AU4GT	NC	NC	¶	NC	† 11Ω	NC	.1Ω	0Ω	
V21	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡ 374Ω
V22	5U4GB	NC	¶	NC	16Ω	NC	15Ω	NC	¶	
V23	21ALP4A/B	0Ω	18K	PIN 6 † 0Ω	PIN 10 ‡ 300K	PIN 11 340K	PIN 12 .1Ω			

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

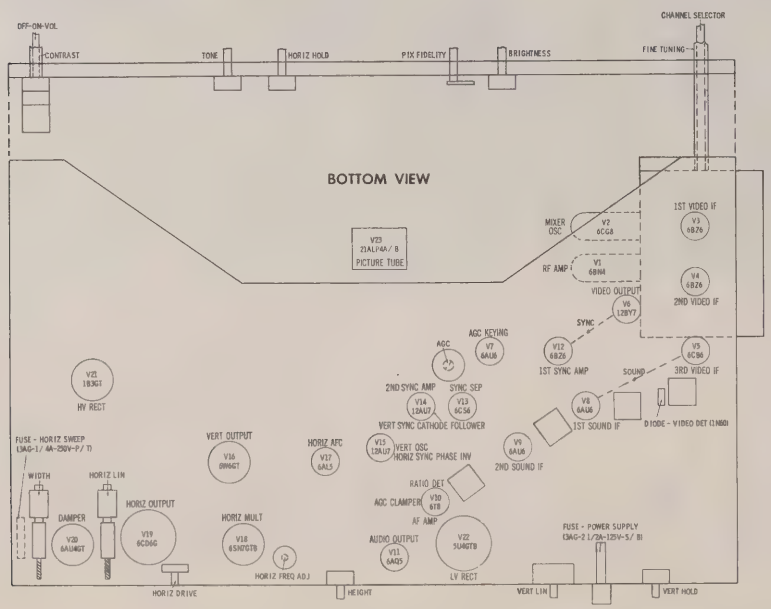
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 280V SOURCE.

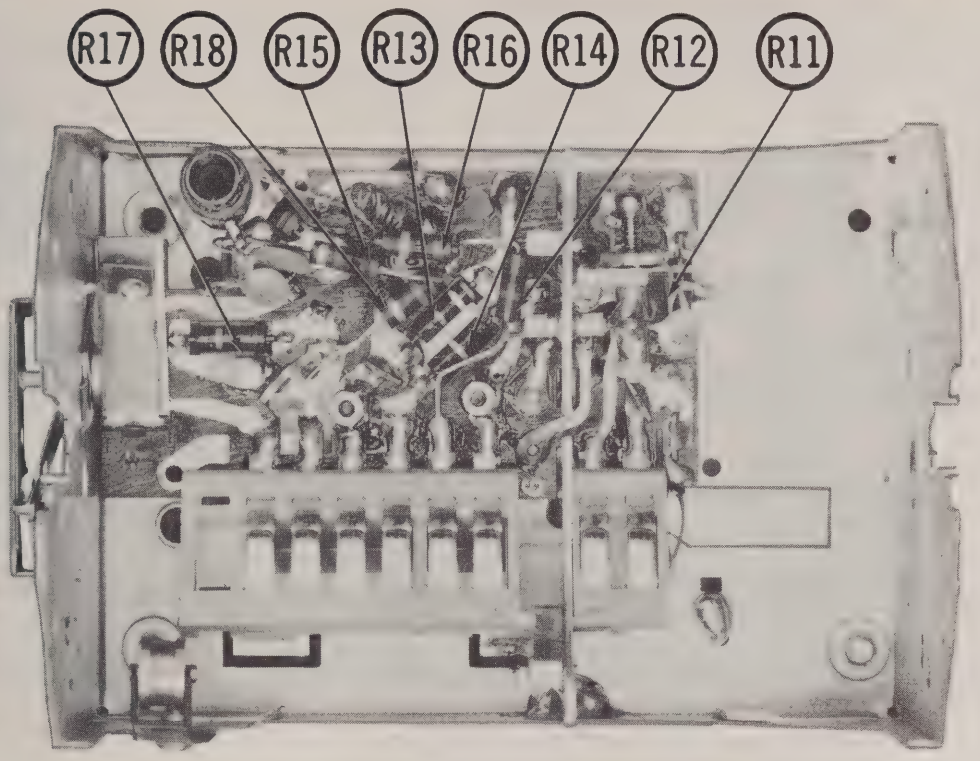
‡ MEASURED FROM PIN 3 OF V20.

NC NO CONNECTION.

TP TIE POINT

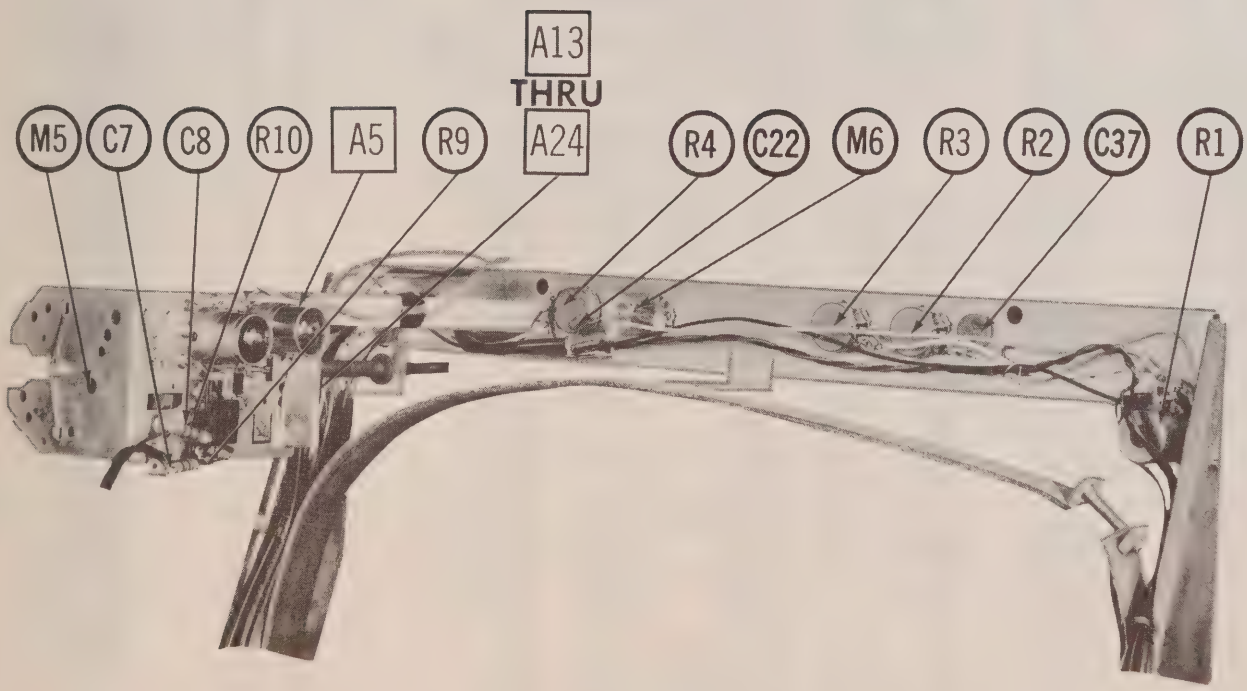


TUBE PLACEMENT CHART



RF TUNER BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CONTROL PANEL & TUNER TOP VIEW

SET 381 FOLDER 1

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TUBE	NOTES
V1	RF Amplifier	6BN4	
V2	Mixer-Osc.	6C86	
V3	1st Video IF Amp	6BZ6	
V4	2nd Video IF Amp	6BZ6	
V5	3rd Video IF Amp	6JB6	
V6	Video Output	2BP1	
V7	Sec. Sensing	6AL5	
V8	1st Sound IF Amp	6AU6	
V9	2nd Sound IF Amp	6AU6	
V10	Ratio Det. & 1st Amp.	6CD6G	
	Audio Clamper	6T8	
V11	Audio Output	6AQ6	

ITEM No	USE	TUBE	NOTES
V12	1st Sync Amp.	6BZ6	
V13	Sync Separator	6C86	
V14	2nd Sync Amp.-Vert. Sync Cathode Follower	12AU7	
V15	Vert. Sync Phase Inv.-Vert Osc.	12AU7	
V.6	Vert Output	6W6GT	
V17	Horiz AFC	6AL5	
V18	Horiz Mult	6SN7GTB	
V19	Horiz Output	6CD6G	
V20	Damper	6AU4GT	
V21	HV Rectifier	1B3GT	
V22	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: ANDREA PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V23	21ALP4A/B	21ALP4A/ 21ALP4A, B	21ALP4A/B	① Aluminized ② Silver screen '65

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	ANDREA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	450	HCE-1348	AFH2-81-50	B0484	FP242.5		T-180	TVL-2772
B	80	450							
C2A	40	450	HCE-1350	AFH4-18-30	CG330	FP280 TC70		Q-030 MTD-4508	R3508*
B	40	450							
C	45	450							
C3	2	90	HCE-1351	PR550Y3	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C4A	40	450	HCE-1349	AFH4-83	C0344 BR1006	FP378.8 TC3301		Q-415 MT-4510	R2509 *
B	20	450							
C	40	450							
D	100	50							
C5	80	25	HCE-1352	PRS25V10	BBR10-25	TC32	TD-10-25	MT-0310	TVA-1304
C6	6	450	HCE-1354	PRS450V4	BR445	TC70	TD-4-450	MT-4504	TVA-1702

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING CAP	RATING VOLT	ANDREA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C7	100		HCC-1822	SI 100	DS-101	LT6T1	GP-100	UC-531	SGA-T1	
C8	100		HCC-1822	SI 100	DS-101	LT6T1	GP-100	UC-531	SGA-T1	
C9	40		HCC-1972		DS-400					
C10	43									
C11	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-524	SGA-DL	
C12	330		HCC-1937	SI 330	DS-331	LT6T33	GP-330	UC-5333	SGA-T32	
C13	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-531	SGA-DI	
C14	220		HCC-1932	SI 220	DS-221	LT6T22	GP-220	UC-5322	SGA-T22	
C15	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-531	SGA-DI	
C16	470		HCC-1949	SI 470	DS-471	LT6T47	GP-470	UC-5347	SGA-T47	
C17	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-531	SGA-DI	
C18	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-531	SGA-DI	
C19	0.9		HCC-1964							
C20	10		HCC-1960-1	NPO-S1 10	TCZ-10	CT4CQ1C	TCO-10	ET-541	ETCC-CJ	NPO
C21	47		HCC-1960	1469-0000047	DS-470	22S5Q47	GP-47	MS-447	TVA-1705	10%
C22	800		HCC-1971		DD-801	L10T8	ED-0008			
C23	.15	400	HCC-1046	P488N-15		CUB4P15		GEM-4015	4TM-P15	
C24	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	500	3000	HCM-1469							10%
C26	1.0	100	HCT-1037-1	P383N-1.0		CUB2W1		GEM-21	2TM-M1	
C27	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	470		HCC-1964	SI 470	DS-471	LT6T47	GP-470	UC-5347	SGA-T47	
C29	1.5		HCC-1964-1							NI400
C30	10		HCC-1960-1	BPD-0047	DD-473	BYA10D47	ED-0047	UC-5347	SGA-D47	
C31	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	56		HCC-1967	SI 56	DS-560	LT6G56	GP-56	UC-5456	SGA-G56	
C33	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	1000		HCC-1969	SI 1000	DS-102	LT6IX	GP-1000	UC-531	SGA-DI	
C36	4700		HCC-1962-1	BPD-0047	DD-473	BYA10D47	ED-0047	UC-5347	SGA-D47	
C37	4700		HCC-1962-1	BPD-0047	DD-473	BYA10D47	ED-0047	UC-5347	SGA-D47	
C38	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C39	.047	400	HCT-1046	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C40	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C41	.01	1000	HCT-1006	P1088N-01		CUB1G1		GEM-1011	10TM-S1	
C42	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C43	220		HCC-1968-1	SI 220	DS-221	LT6T22	GP-220	UC-5322	SGA-T22	
C44	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1		GEM-4104	4TM-P1	
C45	50000		HCC-1951	BPD-05	DF-503				5HK-S5	
C46	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C47	180		HCC-1966	SI 390	DS-181	LT6T18	GP-390	UC-5339	SGA-T18	
C48	.047	400	HCT-1048	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C49	4700		HCM-1648	1464-0047		BSD47			SGP-S47	5%
C50	.02	600		P668N-02	DD-303	CUB6S2	ED-03	GEM-612	6TM-S2	①
C51	.02	600		P668N-02	DD-303	CUB6S2	ED-03	GEM-612	6TM-S2	②
C52	.02	600	HCT-1043	P488N-02	DD-302	CUB4S2	ED-03	GEM-412	4TM-S2	
C53	.05	1000	HCT-1025	P1068N-05	DF-503	CUB1G5		GEM-1015	10TM-S5	
C54	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C55	4700		HCC-1962-1	BPD-0047	DD-473	BYA10D47	ED-0047	UC-5347	SGA-D47	
C56	.01	1000	HCT-1006	P1068N-01		CUB1G1		GEM-1011	10TM-S1	
C57	.003	1000	HCT-1028	P1068N-003		CUB1G3		GEM-1023	10TM-S3	
C58	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C59	100		HCC-1969	SI 100	DS-101	LT6T1	GP-100	UC-531	SGA-T1	
C60	100		HCC-1968	SI 100	DS-101	LT6T1	GP-100	UC-531	SGA-T1	
C61	10000		HCC-1970	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C62	4700		HCC-1962-1	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5347	SGA-D47	
C63	.02	300	HCT-1044	P288N-03	DF-303	CUB6S3		GEM-413	6TM-S3	
C64	.1	200	HCT-1047	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C65	330		HCM-1650	1469-00039		SRS739			MS-339	5%
C66	4700		HCM-1648	1464-0047		BSD47			MS-347	5%
C67	.01	1000	HCT-1026	P1088N-06		CUB1G6		GEM-1015	10TM-S5	
C68	680		HCM-1647							5%
C69	145- 580		HCV-2125							
C70	5000		HCC-1938	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C71	.1	400	HCT-1046	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	ANDREA PART No.	AEROVOX PART No.	CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C72	.5	200	HCT-1033	P388N-5		CUB2P5		GEM-305	2TM-P5	
C73	100	1000	HCC-1972							10%
C74	100	3000	HCC-1973							10%
C75	1	600	HCT-1002	P888N-1	DF-104	CUB6P1			6TM-P1	
C76	.05	600	HCT-1032	P888N-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C77	.15	400	HCT-1048	P488N-15		CUB4P15		GEM-4115	4TM-P15	
C78	.05	600	HCT-1032	P888N-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C79	75	2000	HCM-1635							10%
C80	500	2000	HCH-2705-1		TV-20	MMU200T5	413-1	HV-20035A	20DK-T5	
C81	.05	600	HCT-1012	P888N-05	DF-503	CUB6S5		GEM-615	6TM-S5	

① Some versions use a .04MFD, 600V in this application (Part #HCT-1053)
② Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ANDREA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	½	GRV-857	F2-2			E23757B	Contrast
B	500K			R2-41	-6	-6		Volume
C	Switch			KS-2				
R2A	1Meg	½	GRV-859	B-88	A47-1Meg-8	QU-157	U58	Tone
B	Shaft			Not Req.	KSS-2	Not Req.	Not Req.	
R3A	50K	½	GRV-847	B-51	A47-50K-8	QU-153	U35	Horiz. Hold
B	Shaft			Not Req.	KSS-2	Not Req.	Not Req.	
R4A	250K	½	GRV-852	B-50	A47-250K-8	QU-150	U48	Brightness
B	Shaft			Not Req.	KSS-2	Not Req.	Not Req.	
R5A	1.5Meg	½	GRV-861	AB-742	A47-1.5Meg -8	BU-138	TA15L	Vert. Hold
B	Shaft			AK-1	FKS-1/4	TM3-K1	Not Req.	
R6A	2000Ω	2(W)	GRV-880	WW-323	A42-2000	W99X800	R250L	Vert. Lin.
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R7A	2Meg	½	GRV-844	AB-75	A47-2Meg-8	QU-139	TA25L	Height
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R8A	100K	½	GRV-858	AB-40	A47-100K-8	BU-128	PTA15L	AGC
B	Shaft			AK-1	FKS-1/2	TM3-K1	Not Req.	

* Concentrikit Equivalent K-2 Kit, Base Elements & Shafts B17-105, P1-104 (Panel)
B13-133, R1-200 (Rear)
78-2 (Switch)

STA-LOC equivalent FC75LR, OF1437, RU55A, E32000, US-42.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	RATING WATT	ANDREA PART No.	NOTES
R9	560K		GRC-305	
R10	560K		GRC-305	
R11	4700Ω			
R12	1000Ω			
R13	3900Ω			
R14	220K			
R15	100Ω			
R16	10K			
R17	10K			
R18	8800Ω			
R19	1000Ω	1	GRC-231	
R20	560K		GRC-305	
R21	33K		GRC-330	
R22	100K		GRC-258	
R23	1000Ω		GRC-210	
R24	47Ω		GRC-211	
R25	1000Ω		GRC-210	
R26	1000Ω		GRC-210	
R27	47Ω		GRC-211	
R28	68000 5%		GRC-354	
R29	1000Ω		GRC-210	
R30	1000Ω		GRC-210	
R31	68Ω		GRC-214	
R32	150Ω		GRC-203	
R33	47000Ω 5%		GRC-373	
R34	39000Ω 5%		GRC-359	
R35	2200Ω 5%	2	GRC-381	
R36	2200Ω 5%	2	GRC-381	
R37	2200Ω 5%	2	GRC-381	
R38	18K	2	GRC-357	
R39	150K		GRC-343	
R40	680K		GRC-302	
R41	100K		GRC-258	
R42	22K		GRC-320	
R43	330K		GRC-334	
R44	39K		GRC-347	
R45	39K		GRC-347	
R46	150K		GRC-243	
R47	100K		GRC-258	
R48	47K		GRC-207	
R49	180K		GRC-336	
R50	6.2Meg		GRC-353	
R51	27K		GRC-324	
R52	68K		GRC-304	
R53	1000Ω		GRC-210	
R54	100Ω		GRC-216	
R55	100K 5%		GRC-258	
R56	100Ω		GRC-210	
R57	100K		GRC-258	
R58	100Ω		GRC-216	
R59	33Ω		GRC-289	
R60	18K		GRC-330	
R61	47K		GRC-207	
R62	4.7Meg		GRC-343	
R63	330K		GRC-301	
R64	100K		GRC-258	
R65	2.2Meg		GRC-317	
R66	470K		GRC-228	
R67	330Ω	1	GRC-345	

Note 1: Not used in some versions
Note 2. Some versions may use a 39K resistor in this application.

ITEM No.	RATING OHMS	RATING WATT	ANDREA PART No.	NOTES
R68	39K		GRC-347	Note 1
R69	10K 5%		GRC-304	
R70	15K	1	GRC-327	
R71	68Ω		GRC-214	
R72	1.8Meg		GRC-321	
R73	470K		GRC-228	
R74	100K 5%		GRC-255X	
R75	47K		GRC-207	
R76	100Ω		GRC-250	
R77	1Meg		GRC-274	
R78	10K	1	GRC-232	
R79	18000Ω		GRC-346	
R80	100K		GRC-258	
R81	47000 5%		GRC-373	
R82	39000 5%		GRC-303	
R83	470K		GRC-228	
R84	4700		GRC-213	
R85	47K		GRC-207	
R86	330K		GRC-301	
R87	1.2Meg		GRC-359	
R88	1Meg		GRC-274	
R89	10K		GRC-304	
R90	1.8Meg		GRC-321	
R91	39K		GRC-247	
R92	100K		GRC-258	
R93	100K	2	GRC-258	
R94	330Ω	1	GRC-345	
R95	560Ω		GRC-250	
R96	560Ω		GRC-250	
R97	100K 5%		GRC-358	
R98	100K 5%		GRC-358	
R99	2.2Meg		GRC-317	
R100	27K		GRC-324	
R101	6800Ω	2	GRC-257	
R102	6800Ω	2	GRC-257	
R103	47K		GRC-228	
R104	470K		GRC-228	Note 1
R105	68K		GRC-304	Note 2
R106	5600Ω	1	GRC-356	
R107	150K		GRC-243	
R108	100K 5%		GRC-220	
R109	150K		GRC-243	
R110	100K 5%		GRC-358	
R111	8200Ω		GRC-285	
R112	100Ω		GRC-216	
R113	470K		GRC-228	
R114	100Ω	7	GRW-554	
R115	18K	2	GRC-357	
R116	330K		GRC-301	
R117	47K		GRC-207	
R118	150K		GRC-243	
R119	1.8Ω	1	GRW-557	
R120	470K	1	GRC-309	
R121	4700Ω			
R122	1000Ω			
R123	2000Ω	15	GRW-556	
R124	330Ω	1	GRC-345	
R125	560Ω	2	GRC-365	
R126	3900Ω	1	GRC-351	

TRANSFORMER (POWER)

ITEM No	RATING PRI	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA: ANDREA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V AC & 2.2A	600VCT & 320A	5V & 3A	6.3V & 11A EDC-4 6.3V & 300A	ST-3082-1					

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: ANDREA PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T2	Vert Oscillator	ST-3084	B670I	A-4000	V402	A-8122	28A04	A-97Y	
T3	Vert Output	ST-3086	Z1804 ①	A-3037 ①	V313 ①	A-8123 ①	28S52 ①	A-102X ①	
T4A	Yoke-Horiz.(20MH)	ST-3083	DF80T	MDF-92	Y90F19/4D	DY-18A	Y-16	Y-4i &	
B	(60[2]-Vert.(59.5MH)		2 3	2 3	2 3	2 3	2 3	NW4 2	
T5	Horiz. Output	ST-3085	F8419	HVO-36	X094	HO-256	FLY-16	D-61 *	
			1 *	1 *	1 *	WC-5 1 *	WC-20 1 *		
T6	Width Coil (3-14MH)	SA-393	KF800 4	MWC-11	20IR15 1	WC-5 1	WC-16	WLC-6	
T7	Horiz Lin Coil (0-7 7MH)	SA-394		MWC-8	20IR12 1	WC-8 ①	WC-22 ①	WLC-5	

① Drill new mounting hole(s).
② Connect same as original.
③ Use original horizontal damping network, if necessary.
④ Use terminals #1 and #2
⑤ Use red and blue terminals.
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	9	9	9	9	9	7
7	7	7	7	7	7	6
6	7	7	7	7	7	5
4	T	T	T	3	3	4
3	3	3	3	1	1	3
2	2	2	2	Orange term of WC-5	Term. #2 of WC-20	2
1	6	6	6	Black Term. of WC-5	Term. #1 of WC-20	1
Connect Width Coil Across	3 & 4	3 & T	3 & T	Red & Blue Terms of WC-5 across 1 & 3	Terms #3 & #4 of WC-20 across 1 & 3	1 & 2
Special Notes				④ ⑤	④ ⑤	

④ Remove original width coil (T6) from circuit.
⑤ Reverse width coil primary or secondary, if AGC does not function properly.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: ANDREA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T8	4700Ω	3-4Ω	ST-3070	21107 ①	A-3026 ①	A8092 ①	24849	S-5X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA: ANDREA PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	SL-4030 ①	8A31	① Used in Model MC-VQ21
	10"	PM		SL-4024 ②		② Used in Models C-VQ21, LB-VQ21
	4"	PM		SL-4022 ③		③ Used in Models LB-VQ21, 21LB-VQ21
	12"	PM		SL-4028 ④		④ Used in Model 21LB-VQ21
	5"	PM		SL-4018 ⑤		⑤ Used in Model T-VQ21

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	47.25MC Trap	SA-381				Includes 41.25MC Trap
L2	1st. Video IF	SA-377A				
L3	2nd. Video IF	SA-378-1	17-4522	TV-130	6219	
L4	3rd. Video IF	SA-379	17-4523	TV-130	6219	
L5	Sync. Take Off	SA-380	17-5004	TV-126	6234	
L6	Resonant Choke	SA-349				55 Microhenries
L7	4.5MC Trap	SA-397	20-1004	TV-131	1469	
L8A	Shunt Peaking Coil	SA-391	19-3300			310 Microhenries
B	Series Peaking Coil		19-3250			337 Microhenries
L9	Shunt Peaking Coil	SA-396	19-3180	TV-134	6180	180 Microhenries
L10A	Series Peaking Coil	SA-392	19-4400		6136	406 Microhenries
B	Shunt Peaking Coil		19-4400		6136	406 Microhenries
L11	1st. Sound IF	SA-396				Includes cape.
L12	2nd. Sound IF	SA-390	17-3496	TV-113	6203	
L13	Ratio Det.	SA-400	17-4497	TV-115	6205	
L14	RF Choke	SA-401	19-1004		4609	5.6 Microhenries. IRC part #CL-1
L15	RF Choke	SA-401	19-1004		4609	5.6 Microhenries IRC part #CL-1

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ANDREA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L16	50Ω		SA-395	19-1576	TV-165 *	6210	H-103	HS-8	16.5-42 Millihenries * Disregard tap.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	ANDREA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L17	.320A	76Ω	2 HY.	ST-3087					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ANDREA PART No.	REPLACEMENT DATA	
K1	Vert. Integrator	2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω	FM-5289	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-110 PC-100 115TM1 1405-01 V-1

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ANDREA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2½A 125V S/B	FM5501	FM5193	31302.5 (3AG 2½A 125V S/B)	342001	MDL 2½	HKP
M2	3AG	1/4A 250V P/T	FM5163		318.125 (3AG 1/4A 250V P/T)		GJV 1/4	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ANDREA PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60	FM-5144-1	1N60	1N60	Video Detector (Pigtail)

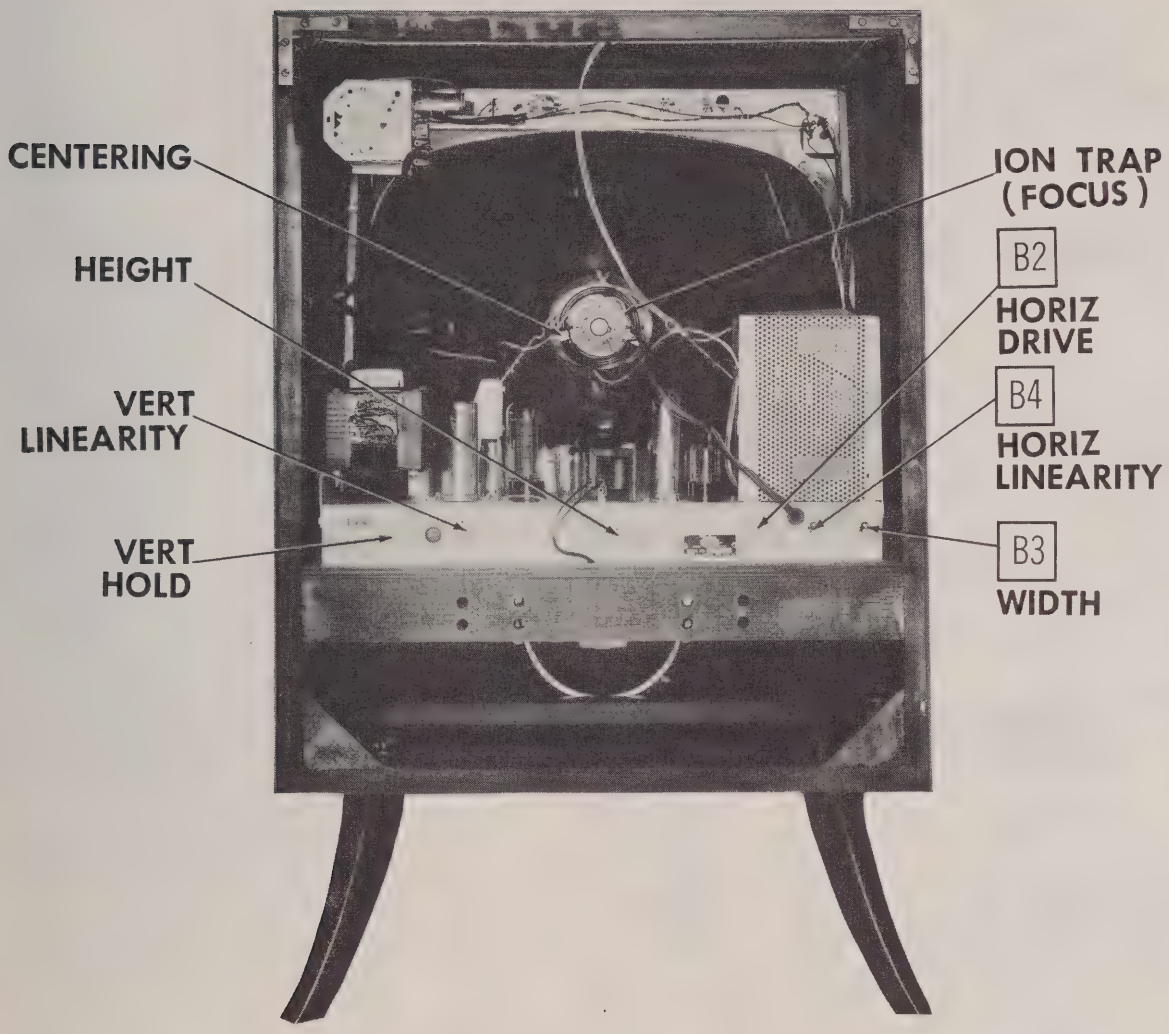
MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
M4	Pilot Lamp		Type #47
M5	Tuner	FM-5466	VHF
M6	Switch	FM-5471	Pix Fidelity (Rotary wafer type)
M7	Centering Device	ST-3067	
M8	Ion Trap	FM-5315	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	FM-5450	
Mask	EP-931	
Knob	FM-5474	Channel Selector
Knob	FM-5476	Fine Tuning
Knob	FM-5475	On-off-volume
Knob	FM-5477	Contrast
Knob	FM-5478	Tone, brightness and horizontal hold
Knob	FM-5479	Pix Fidelity



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control to the center of its range. Adjust the horizontal frequency slug (B1) to the center of its lock-in range.

Turn the horizontal drive (B2) clockwise until drive line appears. Turn B2 counter clockwise until the drive line just disappears.

Adjust the horizontal width slug (B3) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for best linearity and check the high voltage. If the high voltage is below 18KV, back off on B4 slug until it reaches 18KV.

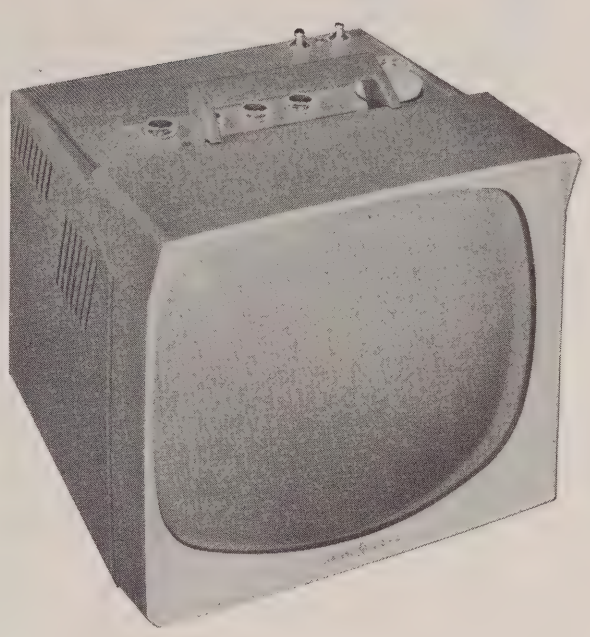
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the top.
2. Remove 3 metal screws and the rear cover.
3. Extend telescoping antenna.
4. Remove 3 chassis bolts from the bottom.
5. Remove 2 metal screws holding the chassis at the top.
6. Remove the picture tube socket and partially remove the chassis.
7. Remove the ion trap, yoke clamp, yoke, HV lead, 2 speaker leads and the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

GENERAL ELECTRIC
MODELS 14P1210, 11, 12 (Q2 Line)

TRADE NAME	General Electric Models 14P1210, 14P1211, 14P1212 (Q2 Line)
MANUFACTURER	General Electric Co., Appliance and Television Receiver Div., Louisville, Ky.
TYPE SET	Television Receiver
TUBES	Fourteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 120 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom holding the front. Remove 2 metal screws holding front located under top edge. Pull front out at the bottom and remove. NOTE: Use only mild soap and water for cleaning.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A8) located on bottom of chassis.

FUSES

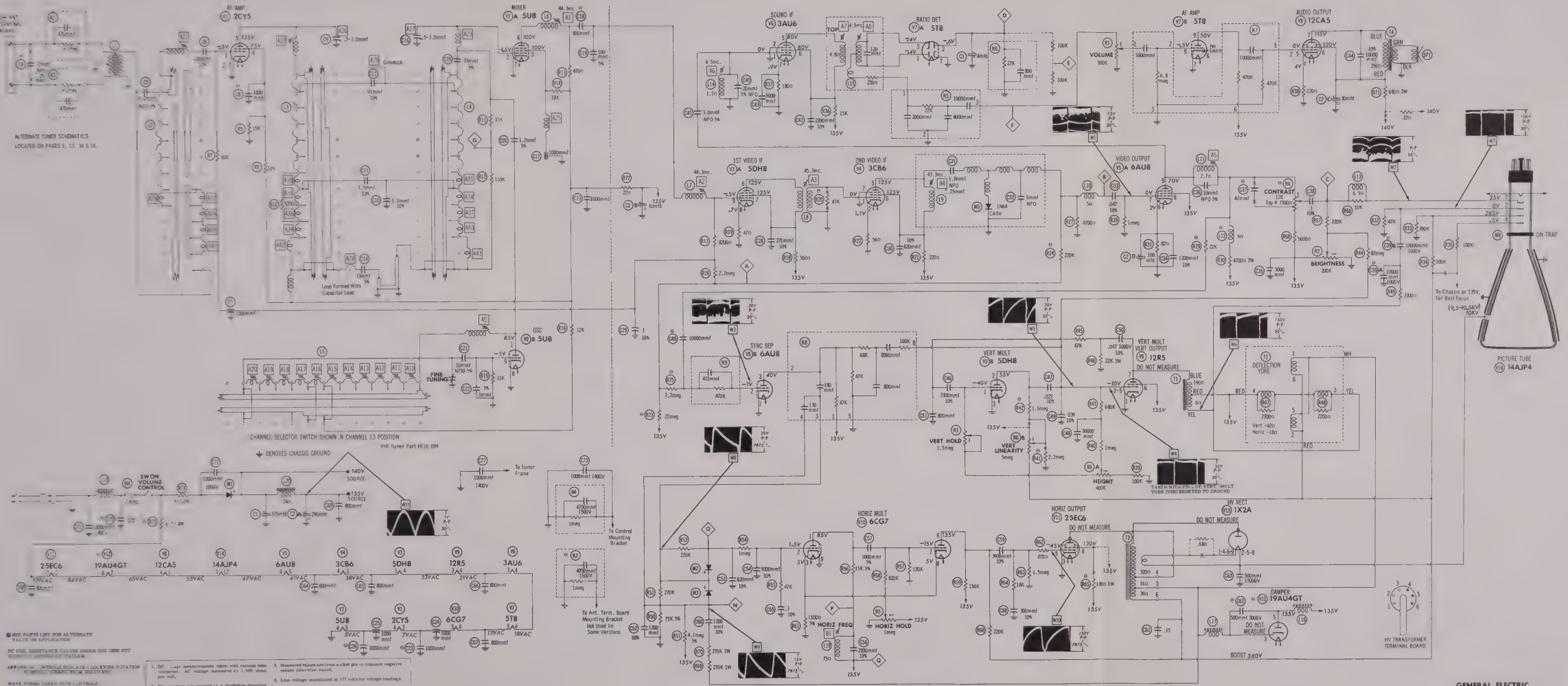
One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

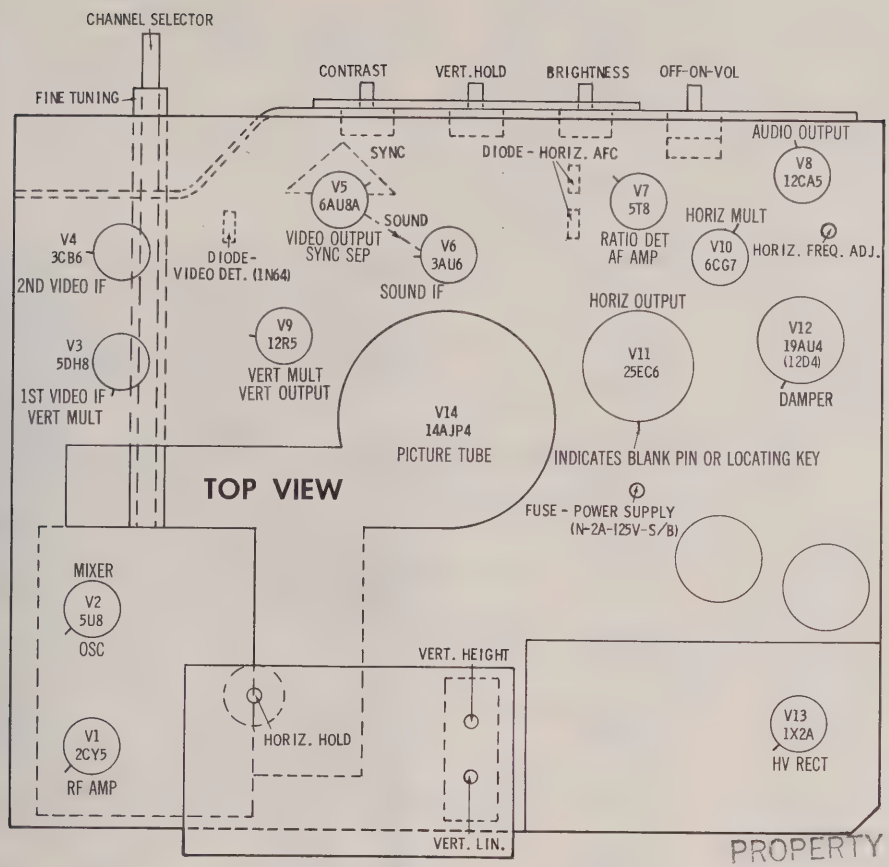
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


ALTERNATE TUNER SCHEMATICS
LOCATED ON PAGES 9, 13, 16 & 18.
RF AMP
V1 2CY5
MIXER
V2 A 5U8
SOUND IF
V6 3AU6
RATIO DET
V7 A 5T8
AF AMP
V7 B 5T8
AUDIO OUTPUT
V8 12CA5
1ST VIDEO IF
V3 A 5DH8
2ND VIDEO IF
V4 3CB6
VIDEO OUTPUT
V5 A 6AU8
OSC
V2 B 5U8
SYNC SEP
V5 B 6AU8
VERT MULT
V3 B 5DH8
VERT MULT
VERT OUTPUT
V9 12R5
DO NOT MEASURE
HORIZ MULT
V10 6CG7
HORIZ OUTPUT
V11 25EC6
DO NOT MEASURE
HV RECT
V13 1X2A
DO NOT MEASURE
DAMPER
19AU4GT
V12
PICTURE TUBE
V14 14AJP4
Gimmick
Loop Formed With Capacitor Lead
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #RJX-099
FINE TUNING
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
VOLUME 500K
CONTRAST 22K
BRIGHTNESS 200K
VERT HOLD 1.5meg
VERT LINEARITY 5meg
HEIGHT 400K
HORIZ FREQ
HORIZ HOLD 1meg
DEFLECTION YOKE
Vert -42Ω
Horiz -18Ω
ION TRAP
To Chassis or 135V For Best Focus (9.5-10.5KV) 10KV
To Tuner Frame
To Control Mounting Bracket
To Ant. Term. Board Mounting Bracket Not Used In Some Versions
TAKEN WITH PIN 1 OF VERT MULT TUBE (V9B) SHORTED TO GROUND
HV TRANSFORMER TERMINAL BOARD
BOOST 360V
25EC6 84VAC
19AU4GT 65VAC
12CA5 53VAC
14AJP4 47VAC
6AU8 41VAC
3CB6 38VAC
5DH8 33VAC
12R5 21VAC
3AU6 5VAC
5U8 5VAC
2CY5 7VAC
6CG7 5VAC
5T8 13VAC
18VAC
SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN UNLESS FOLLOW
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 40 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC ... measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957
GENERAL ELECTRIC
MODELS 14P1210, 11, 12 (Q2 Line)

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

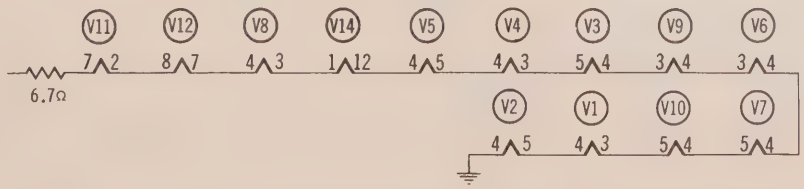
POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M4), Rectifier (M1)**

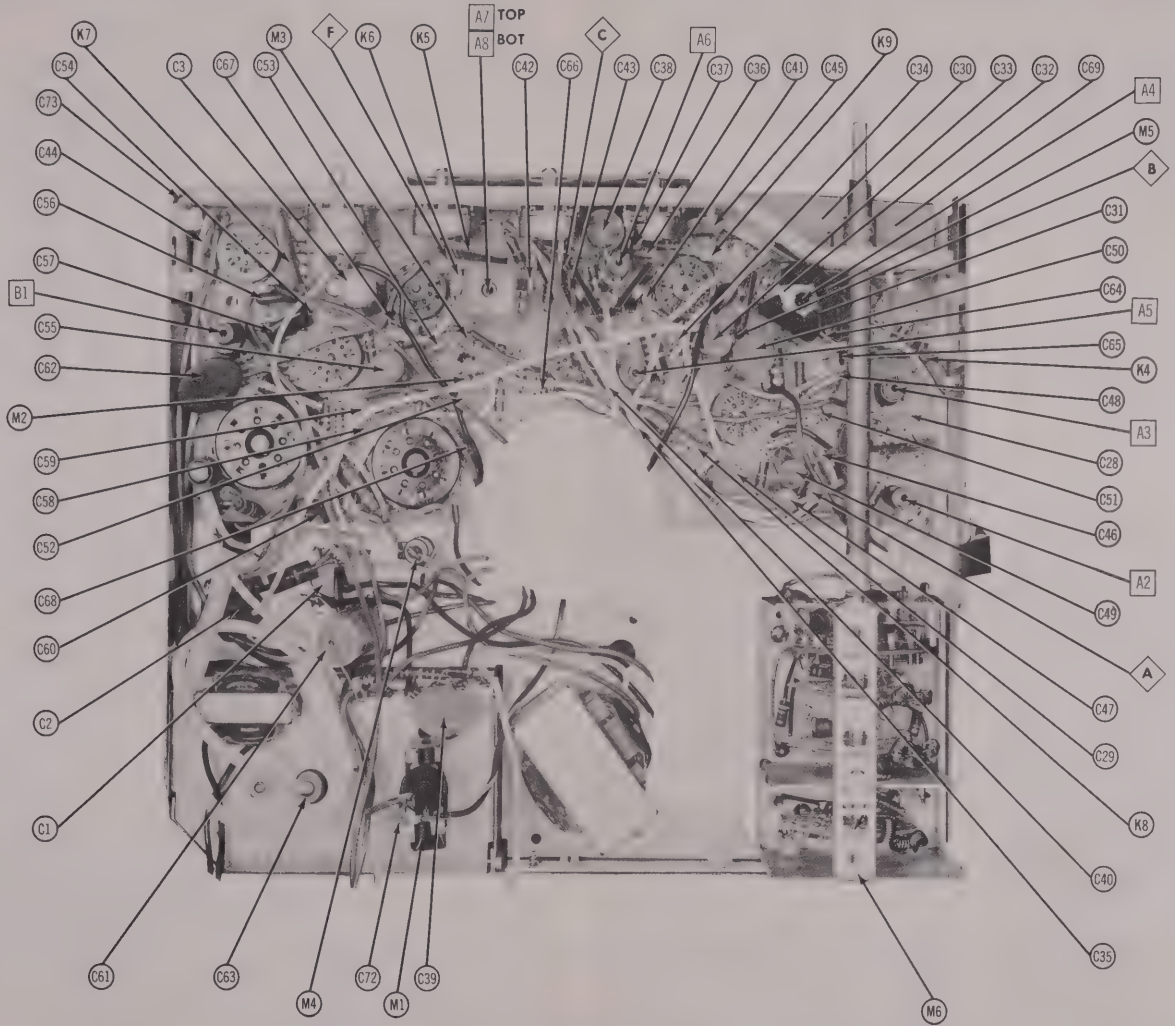
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster -**V3, V4, Diode (M5), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V14**
Has pic, no sound - **V6, V7, V8**

SYNC FAILURE
No vert. sync - **V5**
No horiz. sync - **V5, Diode (M2, M3)**
No vert. or horiz. sync -**V5**

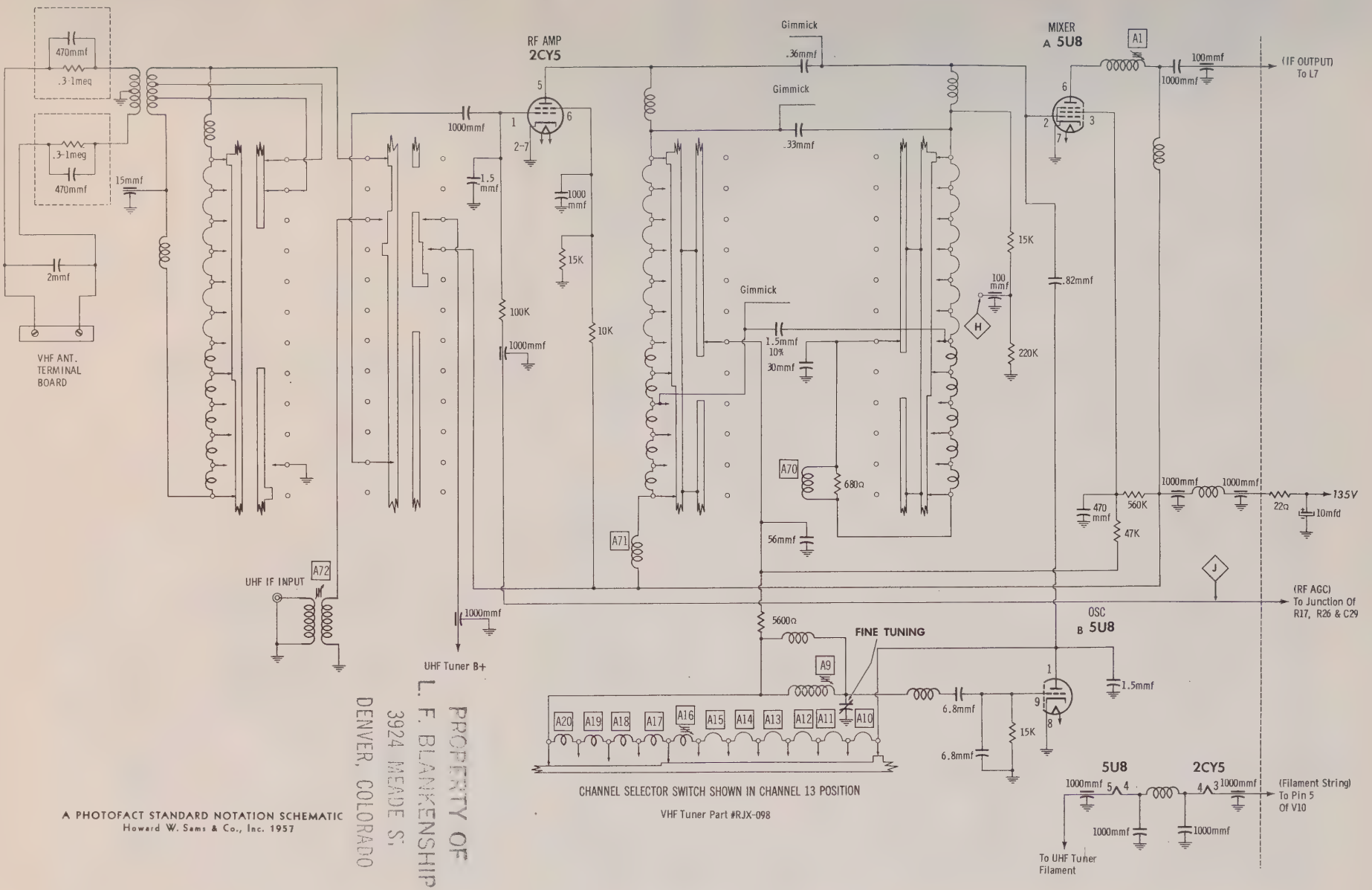
SWEEP FAILURE
No raster, has sound - **M2, M3, V10, V11, V12, V13, V14**
No vertical deflection - **V3, V9**
Poor vert. linearity or foldover -**V3, V9**
Poor horiz. linearity or foldover -**V10, V11, V12**
Narrow picture - **V10, V11, V12, M1**
Vert. off freq. - **V3, V9**
Horiz. off freq. - **V10**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



ALTERNATE TUNER SCHEMATIC

GENERAL ELECTRIC MODELS
14P1210, 11, 12 (Q2 Line)

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT
The high voltage lead should be securely taped and kept away from the chassis
Allow a 20 minute warm-up period for the receiver and test equipment

VIDEO IF ALIGNMENT

Turn the volume control fully counter clockwise
Turn the contrast control fully clockwise
Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Use only enough generator output to provide a usable indication on VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis	44.3MC (Unmod)	Any non-interfering channel	DC probe thru 22K to point Ⓑ. Common to chassis	A1, A3	Adjust for maximum deflection.
2	"	"	45.3MC	"	"	A3	"
3	"	"	43 3MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment"
Calibrate the scope so that 3 volts peak to peak will produce 2 inches of deflection.
Keep the signal input to the receiver at a level that will produce approximately 2 inches of deflection.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep geoerator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis.	44.3MC (10MC Swp)	41.25MC 42.85MC 44.3MC 45.0MC 45 75MC	Any non-interfering channel	Vert. Amp. thru 22K to point Ⓓ. Low side to chassis.		Check for response similar to Fig. 1 with markers as indicated. If necessary, retouch A4 to place 43.85MC marker at 40%, A3 to place 45.75MC at 40% and A1 and A2 for peak region symmetry. The 41.25MC marker is very critical and should be kept between 4-6%.

4.5MC TRAP ALIGNMENT

Set the contrast control fully clockwise

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5	.001MFD	High side to point Ⓔ. Low side to chassis.	Not used	4.5MC (400% 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 2) to point Ⓒ. Low side to chassis	A5	Adjust for MINIMUM 400% indication on scope.

SOUND IF ALIGNMENT

Turn volume control fully counter clockwise unless the speaker is connected.
Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic
A station signal may be substituted for the signal generator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to point Ⓔ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓒ. Common to chassis	A6, A7	Adjust for maximum deflection.
7	"	"	"	"	DC probe thru 10K to point Ⓒ. Common to point Ⓔ.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 6 and 7.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Set the fine tuning to the center of its range.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	Fig 3	Across VHF antenna terminals thru matching network (Fig. 3).	213MC	211 25MC	13	Vert. Amp. thru 47K to point Ⓓ. Low side to chassis.	A9	Adjust to place video marker at 50% as in Fig 4.
			207MC	205 25MC	12		A10	
			201MC	199 25MC	11		A11	
			195MC	193 25MC	10		A12	
			189MC	187 25MC	9		A13	
			183MC	181 25MC	8		A14	
			177MC	175 25MC	7		A15	
			85MC	83 25MC	6		A16	
			79MC	77 25MC	5		A17	
			69MC	67 25MC	4		A18	
			63MC	61 25MC	3		A19	
			57MC	55 25MC	2		A20	

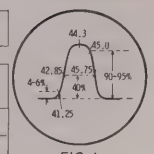


FIG. 1

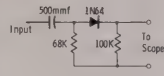


FIG. 2

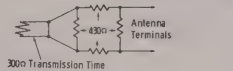
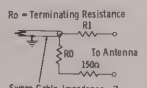


FIG 3A



Zo	Ro	R1
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 3B

FIG. 4

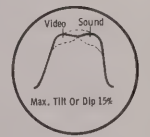


FIG. 5

FIG. 6

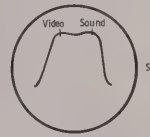


FIG. 7

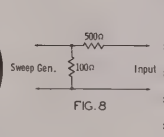


FIG. 8

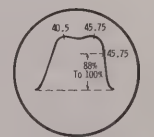


FIG. 9

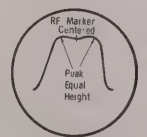


FIG. 10

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-099 AND RJX-100

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
NOTE: Tuner shield should be in place to check response.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9	Fig 3	Across VHF antenna terminals thru matching network (Fig. 3).	213MC	211.25MC 215 75MC	13	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A23, A24, A25	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown. Adjust bandwidth by changing position of C14 lead (A24) with respect to high band coupling strap. If dip is excessive, adjust A25 only SLIGHTLY to prevent loss of gain.
10.	"	"	177MC	175 25MC 179.75MC	7	"	A26, A27, A28	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown. Adjust bandwidth by repositioning the "gimmick" wire (A28) with relation to C13. Recheck step 9 and retouch A23, A23 and A33, if necessary.
11.	"	"	207MC	205.25MC 209 75MC	12	"		Check for response similar to Fig. 5. If necessary, make compromise adjustments of A26 and A27 with channel switch set to that channel. Check other channels to make sure that they have not been seriously affected.
			201MC	199 25MC 203 75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187 25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
12.	"	"	85MC	83.25MC 87 75MC	6	"	A29, A30, A31	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown.
13.	"	"	79MC	77.25MC 81 75MC	5	"	A32, A33, A34	Check tracking. Adjust for proper response, if necessary.
14.	"	"	69MC	67.25MC 71.75MC	4	"	A35, A36, A37	"
15.	"	"	63MC	61.25MC 65 75MC	3	"	A38, A39, A40	"
16.	"	"	57MC	55.25MC 59.75MC	2	"	A41, A42, A43	"

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-097 AND RJX-098

Connect bias as under "Video IF Alignment".
Disconnect the link from the tuner output leaving the ground wire connected. Connect a 100Ω resistor from the tuner output to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Fig. 3	Across antenna terminals thru matching network (Fig. 3).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A44, A45, A46, A47	Adjust in numerical order for maximum gain and symmetry similar to Fig. 5. Adjust first coil for video side of curve and second coil for sound side.
18	"	"	207MC	205.25MC 209 75MC	12	"	A48, A49	"
19.	"	"	201MC	199.25MC 203 75MC	11	"	A50, A51	"
20.	"	"	195MC	193.25MC 197 75MC	10	"	A52, A53	"
21.	"	"	189MC	187.25MC 191.75MC	9	"	A54, A55	"
22	"	"	183MC	181.25MC 185.75MC	8	"	A56, A57	"
23	"	"	177MC	175.25MC 179.75MC	7	"	A58, A59	"
24.	"	"	85MC	83.25MC 87.75MC	6	"	A60, A61	Adjust in numerical order for maximum gain and symmetry similar to Fig. 7. Adjust first coil for video side of curve and second coil for sound side.
25	"	"	79MC	77.25MC 81.75MC	5	"	A62, A63	"
26.	"	"	69MC	67.25MC 71.75MC	4	"	A64, A65	"
27.	"	"	63MC	61.25MC 65.75MC	3	"	A66, A67	"
28.	"	"	57MC	55.25MC 59.75MC	2	"	A68, A69	Adjust in numerical order for maximum gain and symmetry similar to Fig. 7. Adjust first coil for video side of curve and second coil for sound side. Remove 100Ω resistor and reconnect tuner output link.

ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect the negative lead of 3 volt bias supply to point (J). Positive to chassis.
Disconnect IF link from L7 and terminate with a 68Ω resistor at the opened end only.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Set the VHF tuner to the UHF position and adjust the UHF tuning for MINIMUM tilt of the response curve over the center of the tuning area (approximately 620MC).

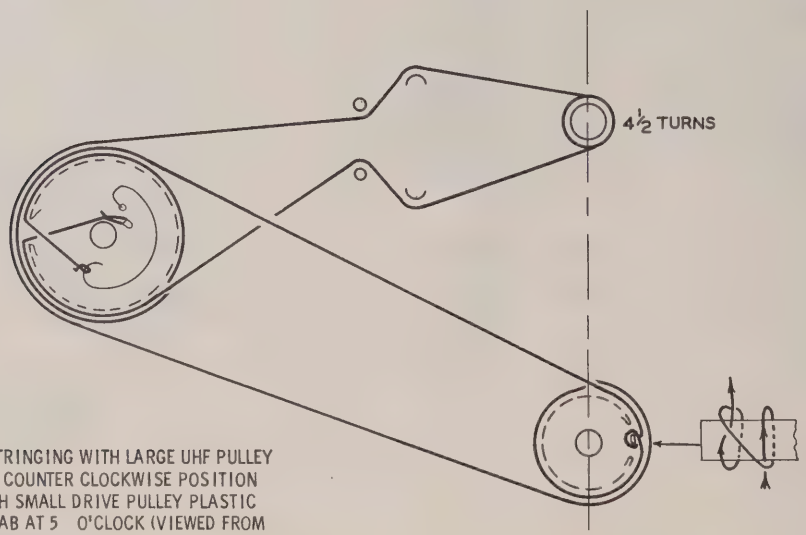
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
29.	Fig. 8	High side to point (K). Low side to tuner chassis.	43MC (10MC Swp)	40.5MC 45.75MC	UHF	Vert. Amp. thru 10K to point (G). Low side to chassis.	A70,A71, A72	Adjust A70 for maximum amplitude at 40.5 MC, A71 for maximum amplitude at 45.75MC and A72 for maximum gain and MINIMUM tilt. (See Fig. 9).

UHF TUNER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (J). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
30.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	460MC	460MC	UHF (Turn UHF tuning shaft fully counter clockwise).	Vert. Amp. thru 10K to point (G) on VHF tuner RJX-100 or point (H) on VHF tuner RJX-098. Low side to chassis.	A73	Adjust to place marker in notch. (See Fig. 10).
31.	"	"	910MC	910MC	UHF tuning shaft fully clockwise	"	A74	Adjust oscillator end inductor (A74) to place marker in notch. Repeat steps 30 and 31 until markers fall in notch at both ends of band.
32.	"	"	530MC	530MC	Adjust UHF tuning until marker falls in notch.	To the output of the audio amplifier (See remarks).	A75,A76	Short points (L) and (M) together but not to chassis. Disconnect the coaxial cable at the VHF tuner and connect a 33Ω resistor across the open ends. Connect the input of an audio amplifier across the 33Ω resistor. The audio amplifier should have sufficient gain to produce 2 inches of deflection on the scope with .1 volt peak to peak input. Set sweep generator output to provide 2 inch deflection on scope. Adjust A75 and A76 for symmetrical response on either side of the marker as in Fig. 10.
33.	"	"	880MC	880MC	"	Vert. Amp. thru 10K to point (G) on VHF tuner RJX-100 or point (H) on VHF tuner RJX-098. Low side to chassis.	A77,A78	Short points (L) and (M) together but not to chassis. Disconnect coaxial cable from VHF tuner and connect a 33Ω resistor across open ends and connect amplifier and scope as in step 32. Adjust A77 and A78 for symmetrical response on either side of marker as in Fig. 10. Remove short from across points (L) and (M) and repeat steps 30 thru 33 until symmetrical response is obtained at both 530MC and 880MC.

Sweep across the entire UHF band and observe the bandpass curve. Minor deviations in tilt or gain may be allowed but be sure to check for abnormally low gain points within the tuning range. This may be a result of insufficient oscillator injection. Check by measuring the crystal current. To do so short points (L) and (M) together, but not to ground and connect a 0-5 MA meter across the coaxial output cable. The reading should be between .65MA and 3.0MA. If the reading falls outside these limits, adjust the position of the oscillator injection loop (A79) with respect to the crystal clip terminal.



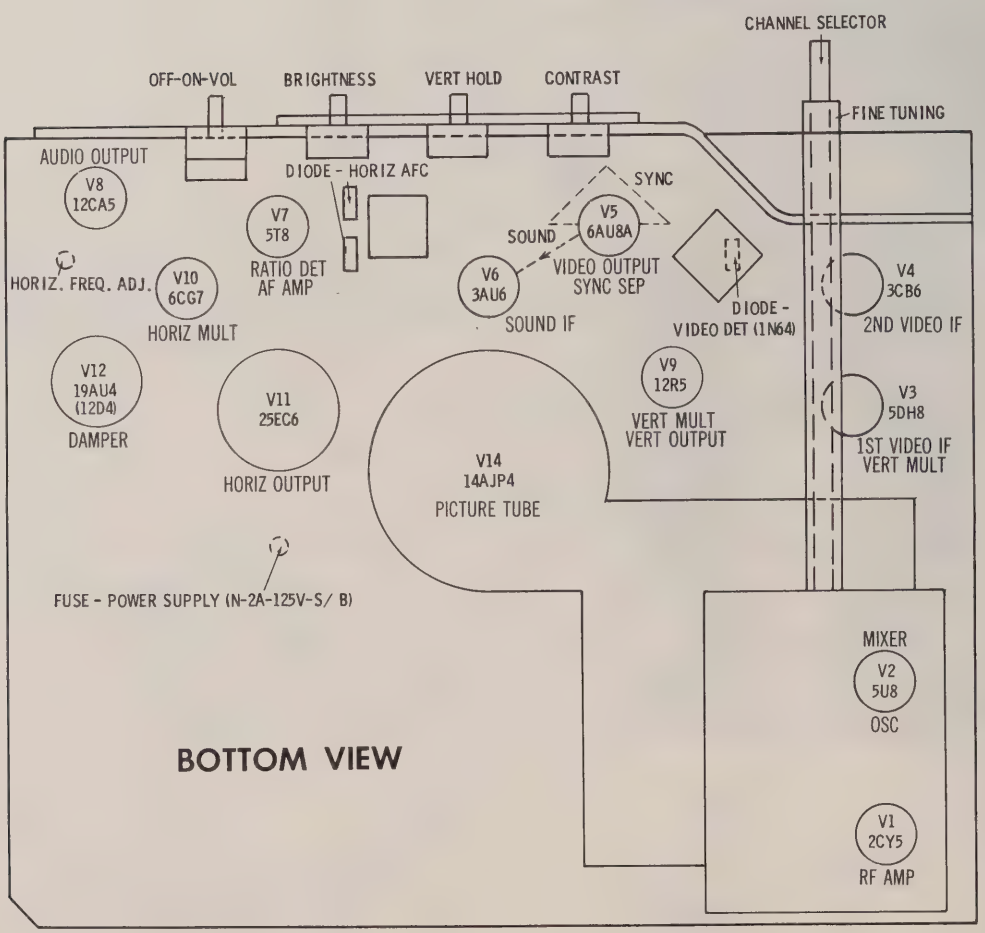
START STRINGING WITH LARGE UHF PULLEY AT MAX. COUNTER CLOCKWISE POSITION AND WITH SMALL DRIVE PULLEY PLASTIC SLEEVE TAB AT 5 O'CLOCK (VIEWED FROM FRONT ON TUNER).

UHF DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2CY5	2.4Meg	0Ω	1.5Ω	1Ω	†46Ω	†8000Ω	0Ω		
V2	5U8	†12K	165K	†10K	0Ω	1Ω	†510Ω	0Ω	0Ω	10K
V3	5DH8	• 900K	•‡2.5Meg	0Ω	7.5Ω	10Ω	†585Ω	†585Ω	47Ω	2.4Meg
V4	3CB6	.1Ω	56Ω	10Ω	11Ω	†245Ω	†245Ω	0Ω		
V5	6AU8A	0Ω	2.5Meg	†25K	13Ω	11Ω	82Ω	1Meg	†24Ω	†3500Ω
V6	3AU6	1.7Ω	0Ω	5Ω	4.5Ω	†15K	†15K	180Ω		
V7	5T8	INF	22K	INF	4.5Ω	3Ω	0Ω	0Ω	6.8Meg	†470K
V8	12CA5	120Ω	470K	16Ω	19Ω	470K	†680Ω	†930Ω		
V9	12R5	0Ω	• 1.6Meg	7.5Ω	5Ω	• 1.6Meg	†24Ω	†214Ω		
V10	6CG7	†15K	1.5Meg	1100Ω	3Ω	1.5Ω	†150K	• 100K	1100Ω	0Ω
V11	25EC6	NC	24Ω	0Ω	NC	1.5Meg	NC	30Ω	†200Ω	TOP CAP ‡16Ω
V12	19AU4	NC	NC	¶	NC	†24Ω	NC	19Ω	24Ω	
V13	1X2A	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡336Ω
V14	14AJP4	16Ω	47K	• ‡85K	†100K	NC	NC	• 250K	13Ω	

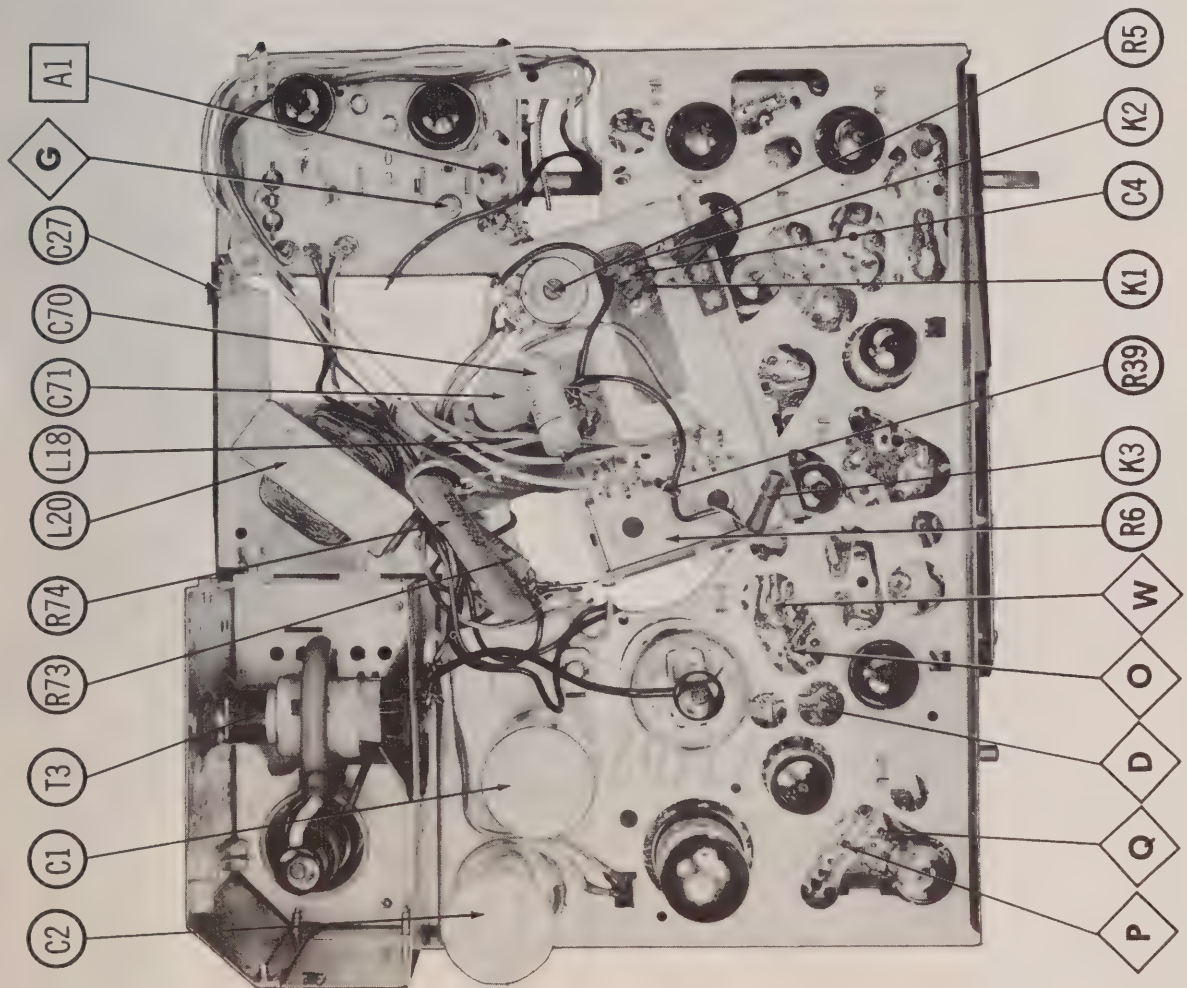
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION.

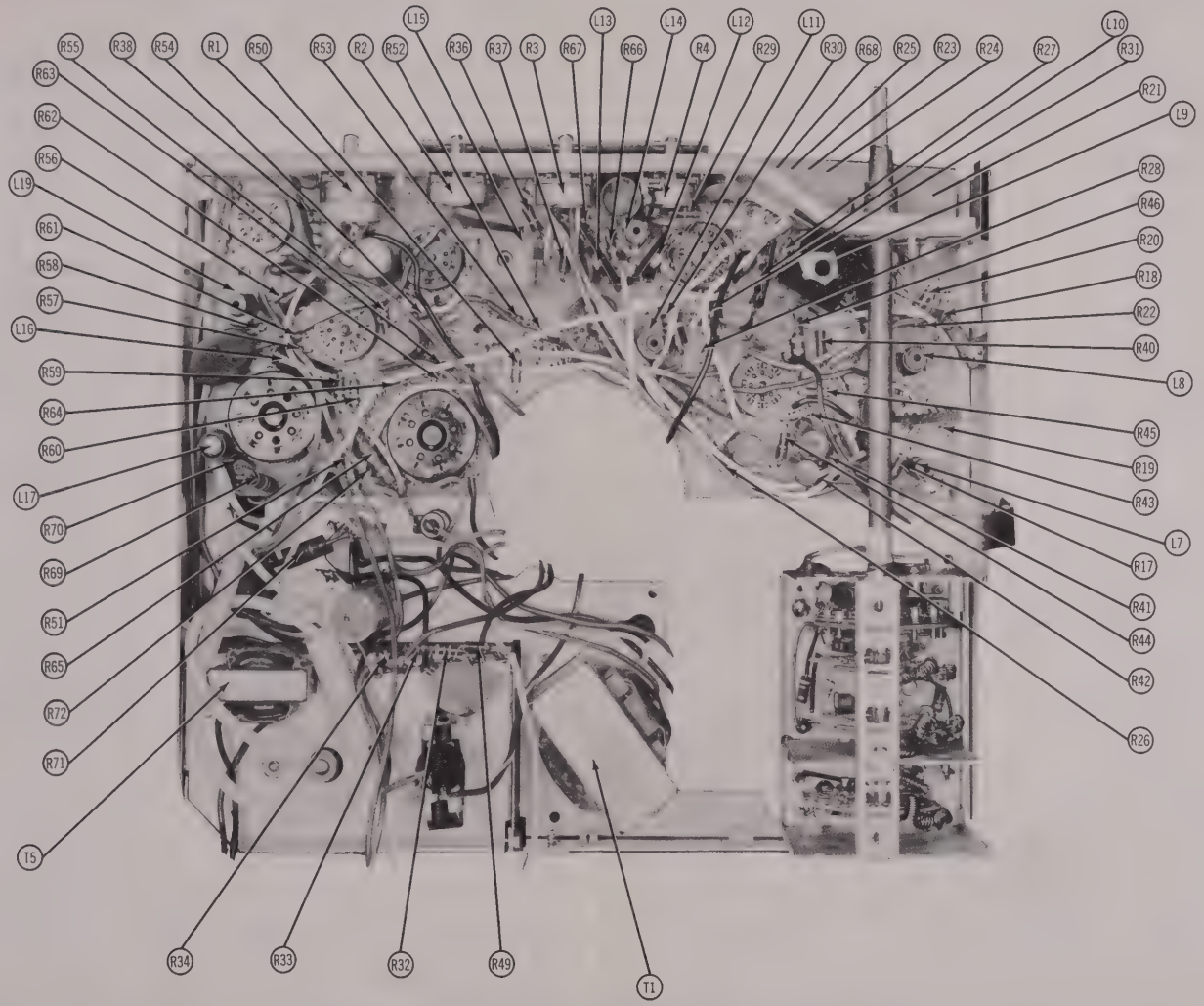


TUBE PLACEMENT CHART

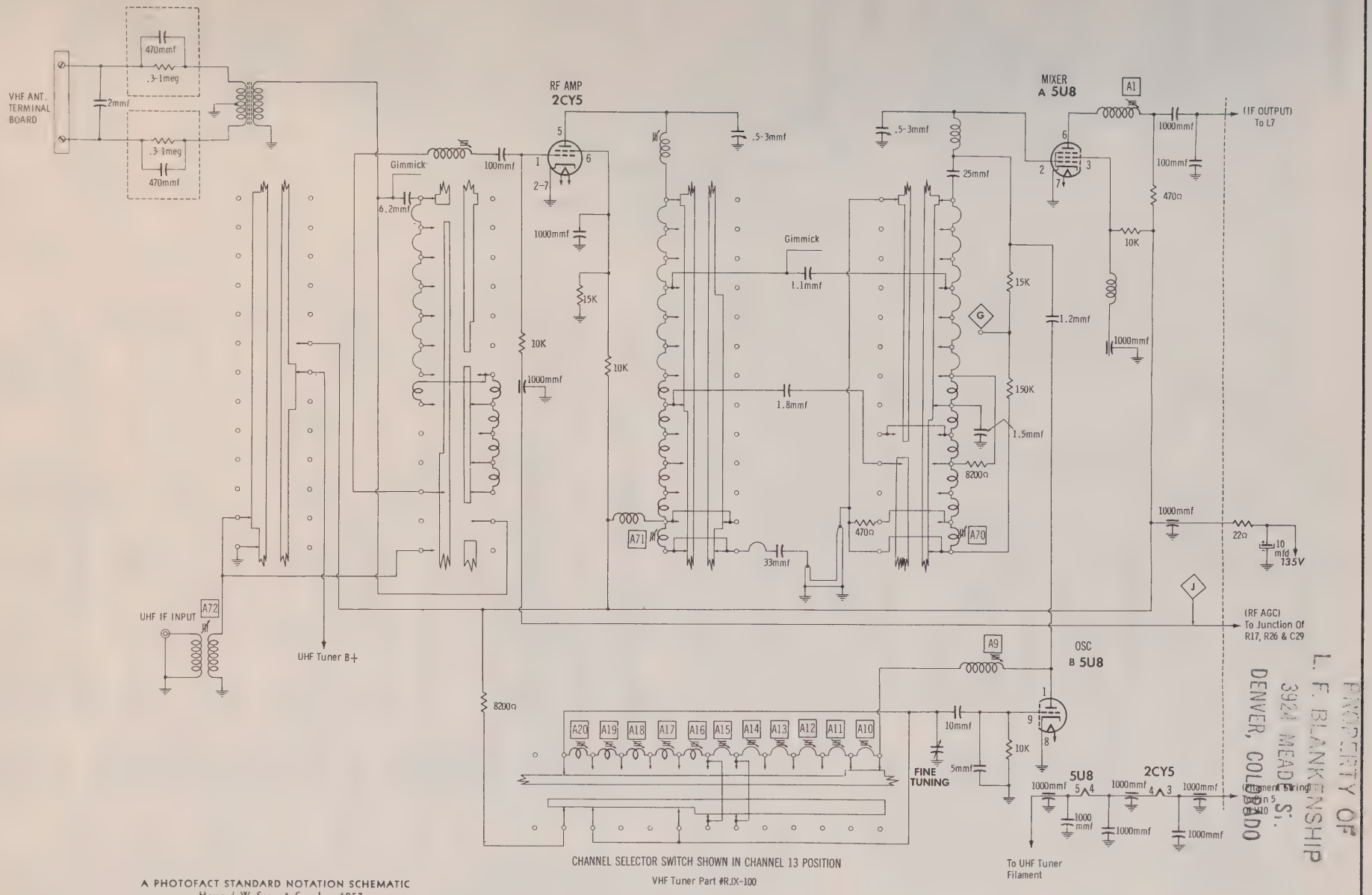
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS TOP VIEW





CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

GENERAL ELECTRIC MODELS
14P1210, 11, 12 (G2 Line)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	2CY5	
V2	Mixer-Oscillator	5U8	
V3	1st Video IF Amp - Vert Mult	5DH8	
V4	2nd. Video IF Amp.	3CB6	
V5	Video Output-Sync Sep.	6AU8A	
V6	Sound IF Amp	3AU6	
V7	Ratio Det - AF Amp.	5T8	
V8	Audio Output	12CA5	
V9	Vert Output-Vert. Mult	12R5	
V10	Horiz Mult	6CG7	
V11	Horiz. Output	25BC8	
V13	Damper	19AU4	Note 1
V13	HV Rectifier	1X2A	

Note 1. A 19D4 may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA G E PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V14	14AJP4	14AJP4 ①	14AJP4 ③	① Aluminized ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA G. E. PART No	AEROVOX PART No	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No.
C1	375	150	RCE-267	AFH2-33	X30189	*FP19 *CC493	TMD-31	D-090	R3490 *
C2A	420	150	RCE-268	AFH4-33-70				C-130 *MTD-4510	R3491 *
B	40	150							
C	20	150							
D	100	10							
C3	4	50	RCE-236	PRS150V4	BBR4-50	TC303	TD-4-50	MT-0504	TVA-1403

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA G.E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	3		RCW-3082			C10V3C				NPO ± .25MMF
C5	6.2		RCW-3240							NPO 5%
C6	100		RCW-3298	NPO-S1 100	TCZ-100	C10Y1C	ED-100	ZT-S31	5TCC-T1	10%
C7	1000		RCW-3117	EF-001	MFT-1000				50S-D1	
C9	1000		RCW-3345	BPD-001	DD-102	BYA5D1	ED-1000	DC521	5HK-D1	①
C9	.5-.3		RCY-080		329-3		3115-D	CT565A		
C10	1.8		RCK-016	NPO-S1 1.5	TCZ-1R5	C10V1SC	TCO-1.5	ZT-5S15	5TCCB-V1S	10%
C11	1.8		RCK-016	NPO-S1 1.5	TCZ-1R5	C10V1SC	TCO-1.5	ZT-5S15	5TCCB-V1S	10%
C12	.82		RCK-015							10%
C13	1000		RCW-3117	EF-001	MFT-1000				50S-D1	
C14	33		RCW-3308	NPO-S1 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	5TCC-Q3S	5%
C15	33		RCW-3308	NPO-S1 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	5TCC-Q3S	5%
C16	.5-.3		RCY-080		329-3		3115-D	CT565A		
C17	1000		RCW-3117	EF-001	MFT-1000				50S-D1	
C18	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	②
C19	100		RCW-3337	NPO-S1 100	TCZ-100	C10T1C	ED-100	ZT-531	5TCC-T1	5%
C21	1.8		RCK-023							5%
C22	10		RCW-3336	NT50-S1 10	TCN-10	C10Q1U	TCT-10	NT-541	5TCU-Q1	NT50 5%
C23	5		RCW-3146	NPO-S1 5	TCZ-5	C10V5C	TCO-5	ZT-555	5TCC-Q5	5%
C24	1000		RCW-3345	BPD-001	DD-102	BYA5D1	ED-1000	DC521	5HK-D1	①
C24	1000		RCW-3117	EF-001	MFT-1000				50S-D1	
C25	1000		RCW-3117	EF-001	MFT-1000				50S-D1	
C26	1000		RCW-3345	BPD-001	DD-102	BYA5D1	ED-1000	DC521	5HK-D1	①
C27	1000	1400	RCW-3331	DAC-2		HVB16D1	HD15-1000		BL-D10	
C28	270		RCW-3327		D6-271	L10T27	ED-270			10%
C29	.1	200	RCB-067							10%
C30	5262		RCW-3262				ED-820			10%
C31	1.8		RCW-3322							NPO ± .25MMF
C32	5		RCW-3057	NPO-S1 5	TCZ-5	C10V5C	TCO-5	ZT-555	5TCCB-V5	NPO 10%
C33	.047	200	RCB-015				ED-1200			10%
C34	1200		RCW-3187							10%
C35	5000		RCW-3361	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C36	33		RCW-3369	NPO-S1 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	5TCC-Q3S	NPO 5%
C37	47			S1 47	D6-471	L7T47	GP-47	UC-5447	5GA-Q3	①
C38	.1	600	RCB-036							10%
C39A	10000	1000	RCW-3264	DAC-37		HVE15S1			BL-S10	①
B	10000	1000		DAC-37		HVE15S1			BL-S10	④
C40	30		RCW-3171	NPO-S1 30	TCZ-30	C10Q3C	TCO-30	ZT-542	5TCC-Q3	NPO 5%
C41	2.0		RCW-3304	NPO-S1 2.0		C10V2C	TCO-3	ZT-553		NPO 5%
C42	2300		RCW-3248							10%
C43	5000		RCW-3014	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C44	10000		RCW-3246							10%
C45	10000		RCW-3186	BPD-01	DD-103	BYA8S1	ED-01	DC511	5HK-S1	③
C46	2300		RCW-3330							10%
C47	022	300	RCB-014							10%
C48	50000		RCW-3358	BPD-06	D7-503				5HK-S5	
C49	039	200	RCB-047							10%
C50	.047	1000	RCB-048							10%
C51	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C52	1200		RCW-3187				ED-1200			10%
C53	820		RCW-3262				ED-820			10%
C54	5000		RCW-3374							10%
C55	.1	200	RCB-017							10%
C56	2200		RCC-041	1464-0022		1R5D22			MS-222	10%
C57	1000		RCC-004	1464-001		1R5D1		MCB385	MS-S1	5%
C58	300		RCW-3336		D6-301	L10T3	ED-300			10%
C59	3900		RCW-3185							10%
C60	1200		RCW-3187				ED-1200			10%
C61	.15	600		P668N-15		CUB6P15		GEM-6015	5TM-P15	
C62	500	3000		HVD-30-470	DD30-501	HVB30T5	HD8-470	DC30347	30GA-T5	③
C63	800	15000	RCW-3325		TV-207		613-1			
C64	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C65	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C66	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C67	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C68	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C69	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C70	.022	600 ③	RCW-3295	DAC-37		HVE15S1		GEM-1611	BL-S10	③
C71	10000	1400	RCW-3286	DAC-37		HVE15S1		GEM-1611	BL-S10	

CAPACITORS (cont)

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C72	1000	1000	RCW-3329	HVD-15-1000	DD-102	BYA10D1M	HD15-1000	DC3021	5GA-D1	
C73	1000	1400	RCW-3331	DAC-2		DD30-102	HVE16D1	GEM-1621	BL-D10	

1. Some versions use 800MMF (Part #RCW-3037) in this application.
2. Some versions use 1000MMF (Part #RCW-3345) in this application
3. Not used in some versions.
4. Some versions use individual capacitors 10000MMF, 1000V ② 10% (Part #RCW-081) in this application.
5. Some versions use 5000MMF (Part #RCW-3381) in this application.
6. Some versions use .01MFD, 600V ② 20% or 10000MMF ③ 1400V (Part #RCW-3286) in this application. Replace with 10000MMF, 1400V.
7. Some versions use 540MMF, 3000V ① 10% N2200 ceramic (Part #RCW-3328).

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	RRC-399					Volume
B	Switch							
R2	200K	½	RRC-437					Brightness
R3	1.5Meg	½	RRC-403					Vert. Hold
R4	12K	½	RRC-438①					Contrast-Tap ② 7500Ω
R5A	1Meg	½	RRC-395	AB-69	A4T-1Meg-S	Q1-137	PTA1254L	Horiz. Hold
B	Shaft			AK-19	RH-3	TQ	Not Req.	
R6A	400K	½	RRC-400					Height
B	Switch							Vert. Lin.

① In some versions this control remains the same part number, but is a 12K with no tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	G. E. PART No.	NOTES
R7	10K			
R8	10K			
R9	15K			
R10	8300Ω			
R11	15K			
R12	150K			
R13	470Ω			
R14	10K			
R15	10K			
R16	12K			
R17	82000			Note 1
R18	560Ω			
R19	47Ω			
R20	47K			Note 1
R21	220Ω			
R23	56Ω			
R24	22Meg			Note 2
R24	220K			Note 3
R25	2.2Meg			Note 4
R26	2.2Meg			
R27	4700Ω			
R28	1Meg			
R29	22K			Note 3
R30	4700Ω	2		
R31	82Ω			
R32	47K			
R33	390K			
R34	100K			
R35	100K			
R36	15K			
R37	180Ω			
R38	1200			
R39	100K			
R40	1Meg			
R41	2.2Meg			Note 6
R42	1.5Meg			Note 1
R43	680K			
R44	82Meg		RRD-005	
R45	47K			
R46	22K	1		
R47	2200Ω			
R48	2200Ω			
R49	3300Ω			
R50	75K 5%			
R51	4.7Meg 5%			
R53	270K			
R54	220K			
R55	1Meg			
R56	47K			
R56	15K 5%			
R57	120K			
R58	820K			
R59	150K			
R60	220K			
R61	1100Ω 5%			
R62	470Ω			
R63	1.5Meg			
R64	18K			
R65	180Ω	1		Note 1
R66	10K			
R67	220K			
R68	5800Ω			
R69	270K	1		
R70	270K	1		
R71	680Ω	3		
R72	22Ω			
R73	6.7Ω	4	RRW-171	Note 7
R74	5Ω	10	RRW-170	

Note 1. Not used in some versions.
Note 2. Some versions may use a 20Meg, 5% in this application.
Note 3. Some versions may use a 180K in this application.
Note 4. Some versions may use a 1.5Meg in this application.
Note 5. Some versions may use a 33K in this application.
Note 6 Some versions may use a 3.3Meg in this application.
Note 7. Some versions may use a 7.5Ω, 7W (Part #RRW-171) or an 18Ω, 10W (Part #RRW-179) in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	Hallodrson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	RTO-209	Z1900 ①			V316	A-8147	28875 ①	A-118X ②
T2	Yoke-Horiz.(2.6MH) (110°)-Vert (43MH)	RLD-080							
T3	Horiz. Output	RTO-207							

① Use 6 to 1 turns ratio. Connect as autoformer.
② Use 5.5 to 1 turns ratio.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	G. E. PART No.	Hallodrson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	3800Ω	3-4Ω	RTO-210	Z1105 ①	A-3016 ①	A-3328	24S46	S-4X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA G.E. PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	ROP-035	4A07	

COILS (RF-IF)

ITEM No.	USE	G. E. PART No	NOTES
L1	Ant Trans.	RLA-047	
L2	Ant Coils	RSX-109	Channels 2-13, includes wafer assy. and C5 and L1
L3	RF Coils	RSX-108	Channels 2-13, includes wafer assy. and C10, C13, C14
L4	Mixer Grid Coils	RSX-107	Channels 2-13, includes wafer assy. and R5
L5	Osc. Coils	RSX-096	Channels 2 -13, includes wafer assy. and R16
L6	Mixer Plate Coil	RLI-603	

ITEM No.	USE	REPLACEMENT DATA G.E. PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L7	1st. Video IF	RLI-381				
L8	2nd. Video IF	RTL-215				
L9	3rd. Video IF	RLI-422				Includes coils, cage and M5
L10	Series Peaking Coil	RLI-148				140 Microhenries
L11	4.5MC Trap	RLI-428				
L12	Shunt Peaking Coil	RLI-345	19-4400	TV-190	6134	390 Microhenries - Note 1
L13	Series Peaking Coil	RLI-197			6184	220 Microhenries
L14	Sound IF	RLI-425				
L15	Ratio Detector	RTD-030			6305PC ▲	Includes resistor
L16	RF Choke	RLI-428				6.2 Microhenries
L17	RF Choke	RLJ-439				8.2 Microhenries
L18	Line Choke	RLJ-430				120 Microhenries

Note 1. Some versions may use part #RLI-367 (430 Microhenries) in this application.
▲ Connect 2300 resistor to tertiary winding.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI	SEC	REPLACEMENT DATA G. E. PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No	NOTES
L19	75Ω		RLJ-424						

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RESISTANCE	INDUCTANCE @ CURRENT 1000 Cps	REPLACEMENT DATA G. E. PART No.	Hallodrson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L20	.260A	24Ω	.7 HY.	RLF-078				26C44	C-27X ①

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G.E. PART No	REPLACEMENT DATA
K1	Antenna Isolation	470MMF, 3-1Meg	RCR-003	Centralab RC-471
K2	Antenna Isolation	470MMF, 3-1Meg	RCR-003	Centralab RC-471
K3	Chassis Isolation	4700MMF @1500VAC, 1Meg	RCR-008 ①	Centralab RC-490
K4	Chassis Isolation	4700MMF @ 1500VAC, 1Meg	RCR-008	Centralab RC-490
K5	De-emphasis Network	2000MMF, 4000MMF, 10000MMF, 22K	REK-019	
K6	Ratio Detector	600MMF, 22K	RCR-005	Centralab RC-476
K7	Audio Coupler Network	5000MMF, 10000MMF, 6.8Meg, 470K, 470K	REK-016	
K8	Vert. Integrator Network	2000MMF, 800MMF, 1300MMF, 180MMF, 47K, 47K, 100K, 68K	REK-030	
K9	Sync Coupler	470MMF, 470K	RCR-003	Centralab RC-465

① Not used in some versions.

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA G.E. PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	400A	RER-031 ①	1179A ②	1N1006 ①	RS450SL ②	500 ②	1 Germanium type.
M2		RED-006 ①	1215 ②		171 ②		2 Selenium type.
M3		RED-006 ①	1215 ②		171 ②		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA G.E. PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No FUSE	HOLDER
M4	N	2A 125V 8/B	RER-033	RJW-007	313002 (M 2A 125V 8/B)	346017	N2	HN 1 3/4 to 2 1/2

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA G. E. PART No	CBS PART No.	SYLVANIA PART No.	NOTES
M5	1N84	RED-001	1N84	1N84	Video Detector (Pigtail)

PARTS LIST AND DESCRIPTIONS (Continued)

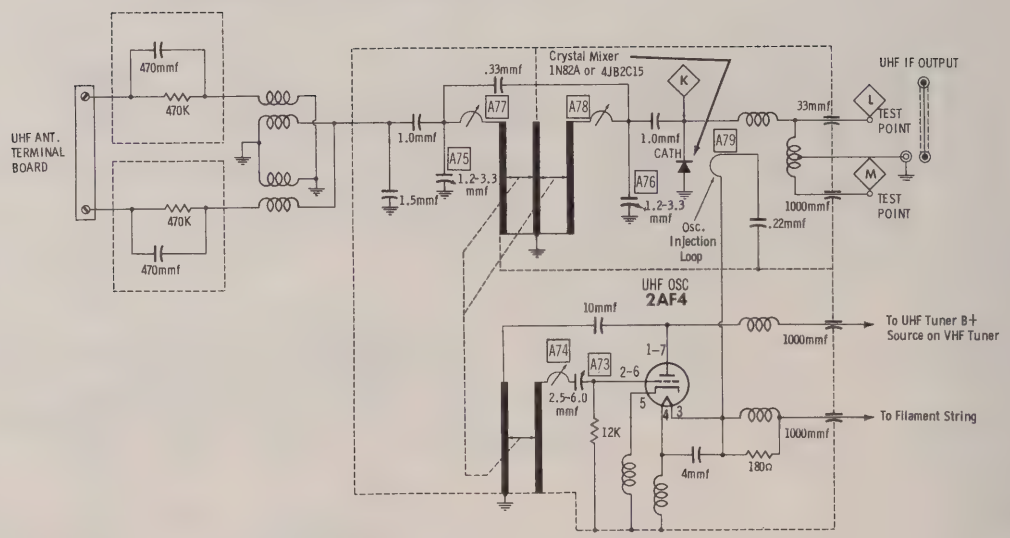
MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M6	Tuner	RJX-099	VHF - 12 position
	Tuner	RJX-097	VHF - 12 position
	Tuner	RJX-098	VHF - 13 position
	Tuner	RJX-100	VHF - 13 position
	Tuner	RUX-023	UHF Assembly
M7	Centering Device	REA-019	(Does not include yoke clamp part #RMX-377).
M8	Ion Trap	RET-016	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

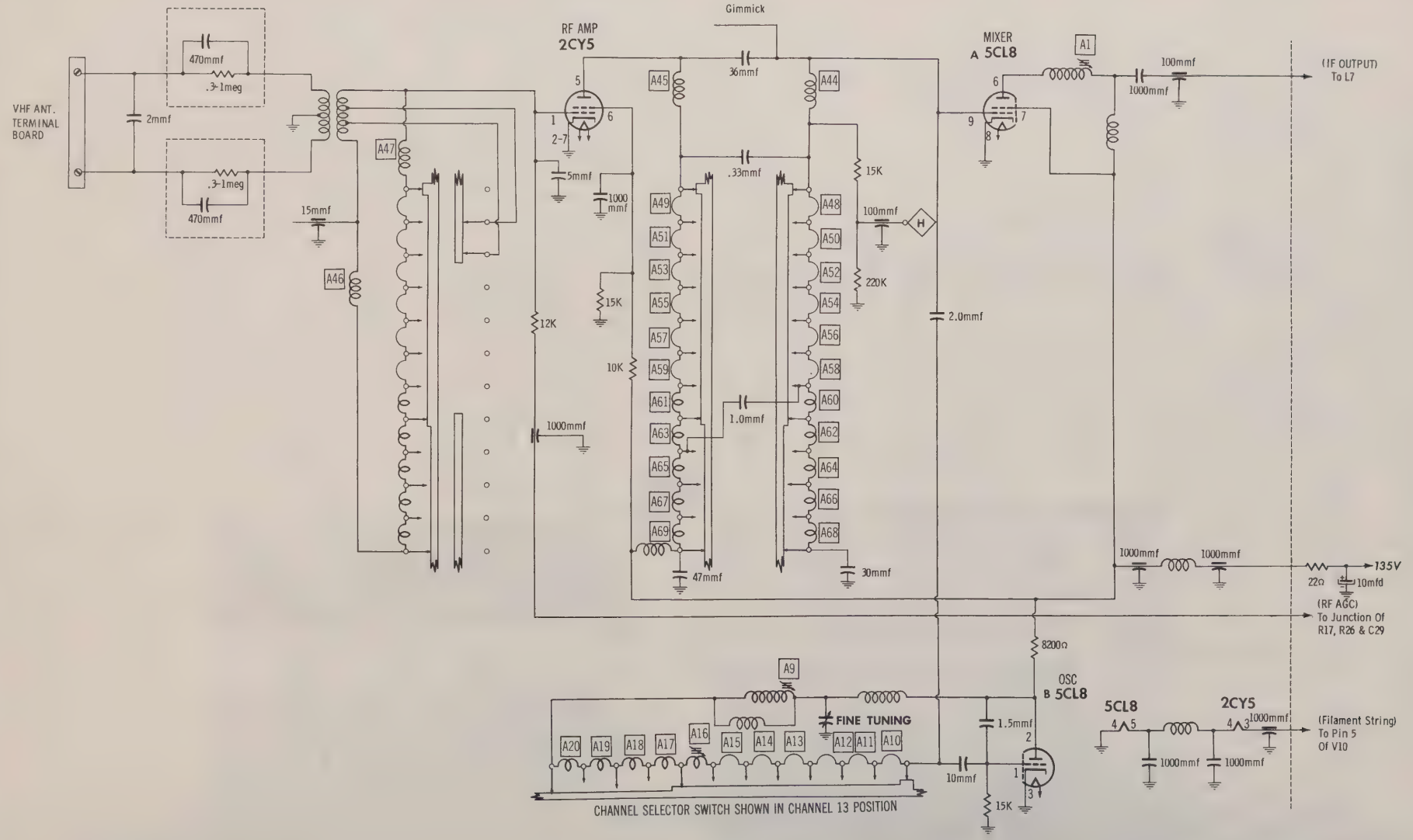
NAME	PART NO.	DESCRIPTION
Safety Glass	RDW-125	
Knob	RDK-644	VHF Channel Selector
Knob	RDK-659	UHF Dial (Off-white)
Knob	RDK-645	UHF Dial (Light green)
Knob	RDO-026	Tuning (Off-white)
Knob	RDK-530	Tuning
Knob	RDK-642	Secondary
Handle	RHY-088	Tan (Model 14P1210)
Handle	RHY-089	Red (Model 14P1211)
Handle	RHY-090	Green (Model 14P1212)
Cabinet	RAC-217	Front (Off-white and tan) Model 14P1210
Cabinet	RAC-218	Front (Off-white and tan) Model 14P1211
Cabinet	RAC-219	Front (Light green and green) Model 14P1212
Cabinet	RAV-1049	Rear (Tan) Model 14P1210
Cabinet	RAV-1050	Rear (Red) Model 14P1211
Cabinet	RAV-1051	Rear (Green) Model 14P1212



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

UHF Tuner Part #RUX-023

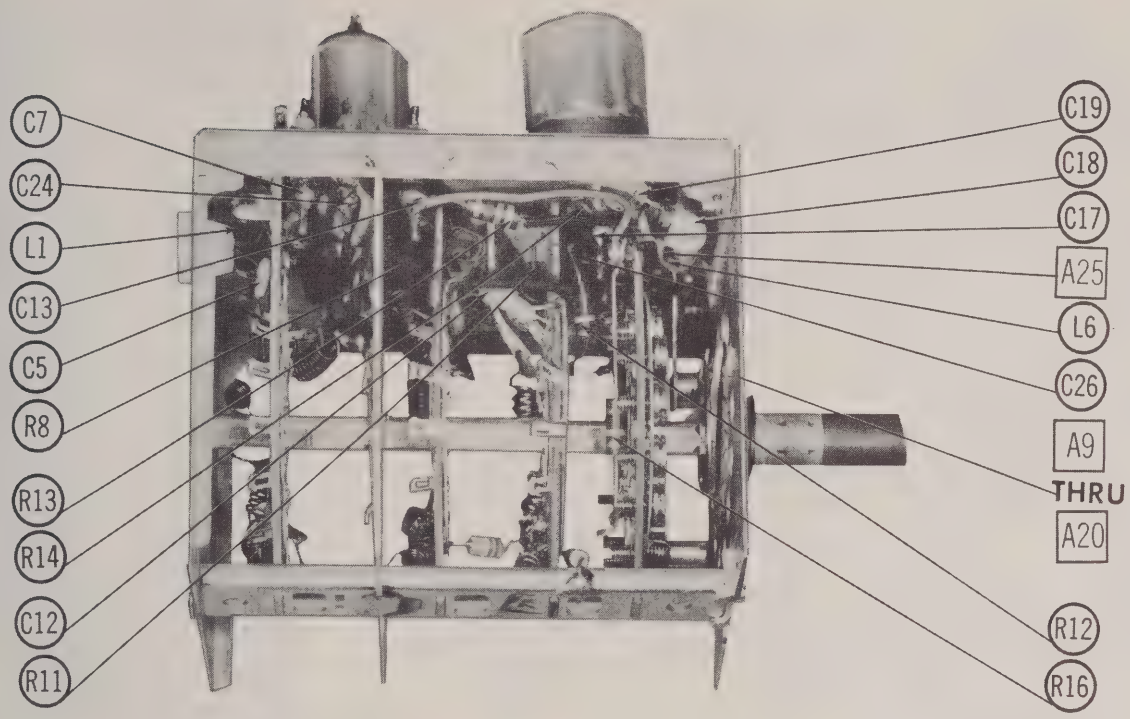
ALTERNATE TUNER SCHEMATIC



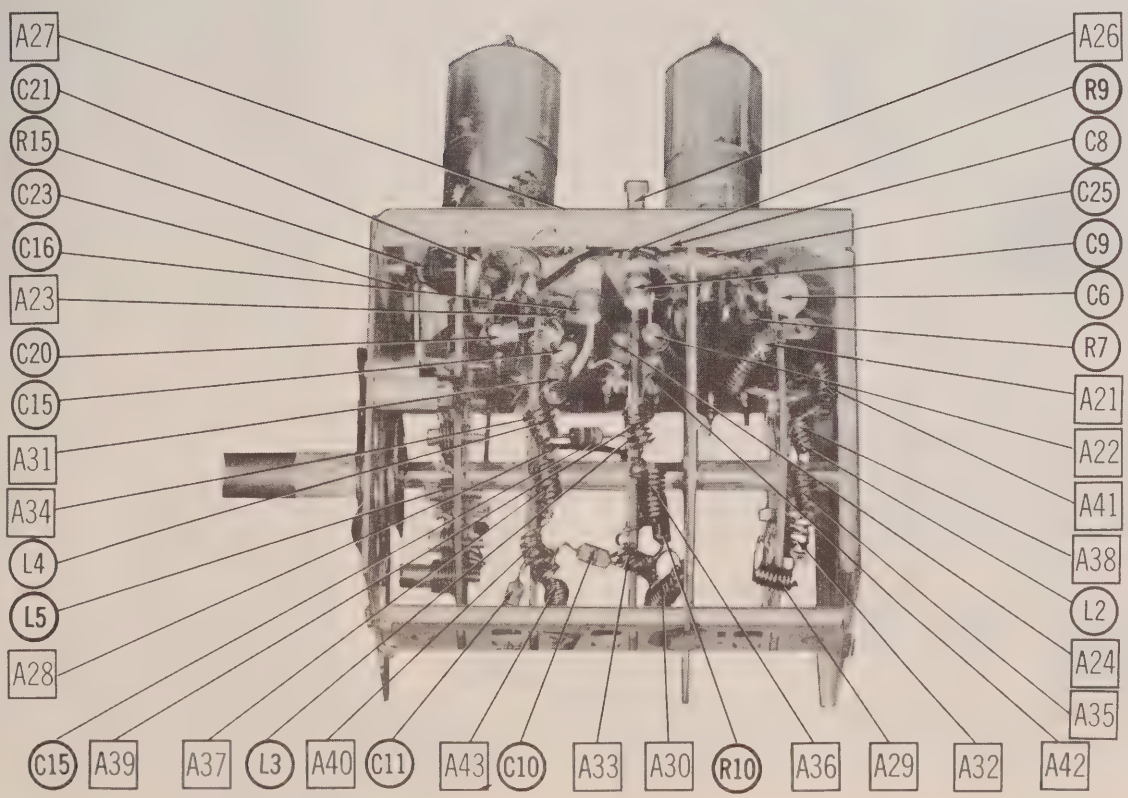
VHF Tuner Part #RJX-097

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

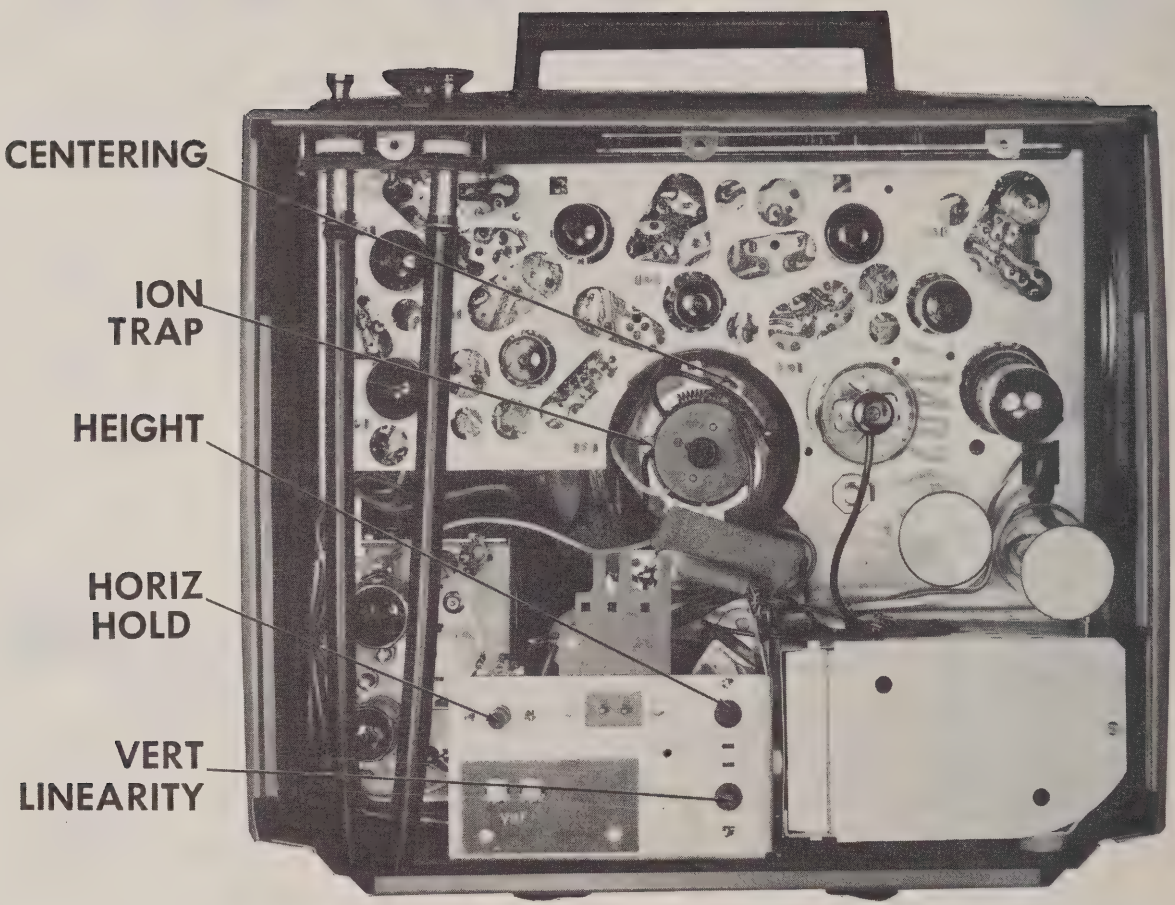


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

FOLDER 2



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune the receiver to a weak signal and adjust the controls for a normal picture.

Connect a short clip lead from point ⓝ to point ⓞ. Connect a 2200Ω resistor from point ⓟ to point ⓠ.

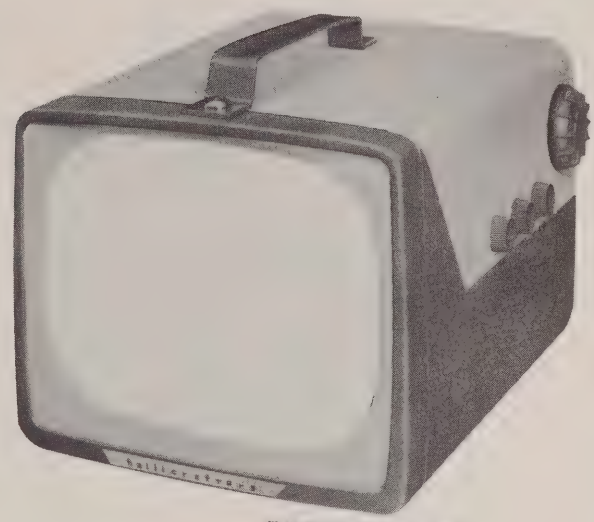
Adjust the horizontal hold control to the point where the picture appears to float back and forth across the screen.

Remove the 2200Ω resistor from across points ⓟ and ⓠ.

Adjust the horizontal frequency slug (B1) until the picture again floats back and forth across the screen. Remove the short from points ⓝ and ⓞ.

PHOTOFACT* Folder
*TRADE MARK

HALLICRAFTERS MODELS 10TS900T, 10TS901T (Ch. A2011, B2011)



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs.
2. Remove 4 metal screws and swing rear cover up over the top.
3. Remove 2 antenna leads.
4. Remove the center bolt from the handle.
5. Remove 3 chassis bolts and the 2 rear feet from the bottom.
6. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	Hallicrafters	MODELS	CHASSIS
		10TS900T	A2011
		10TS901T	B2011
MANUFACTURER	The Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Illinois		
TYPE SET	Television Receiver		
TUBES	Thirteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 115 Watts, 1.14 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 11 o'clock, and should be adjusted first. The LOW band adjustment is located at 3 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 metal screws holding the handle. Remove 2 metal screws from the bottom front edge of the cabinet. Remove the front and safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

FUSES

A 4.7Ω fusible resistor (R68) is used for LV power supply protection. (For location, see tube placement chart).

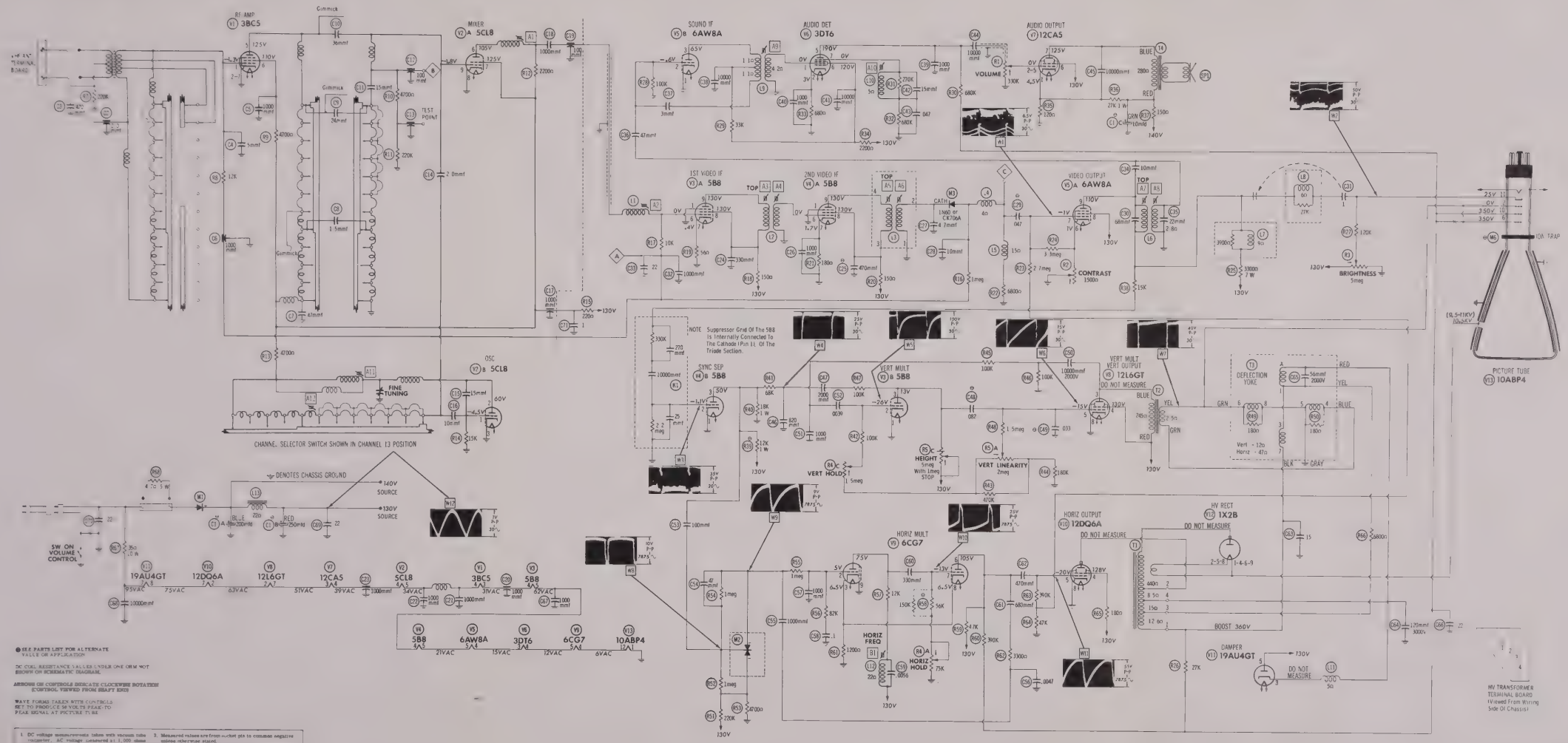
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HALLICRAFTERS MODELS 10TS900T, 10TS901T (Ch. A2011, B2011)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


RF AMP V1 3BC5
Gimmick
MIXER V2 A 5CL8
OSC V2 B 5CL8
FINE TUNING
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
SOUND IF V5 B 6AW8A
AUDIO DET V6 3DT6
AUDIO OUTPUT V7 12CA5
VOLUME
1ST VIDEO IF V3 A 5B8
2ND VIDEO IF V4 A 5B8
VIDEO OUTPUT V5 A 6AW8A
CONTRAST
BRIGHTNESS
NOTE Suppressor Grid Of The 5B8 Is Internally Connected To The Cathode (Pin 1) Of The Triode Section.
SYNC SEP V4 B 5B8
VERT MULT V3 B 5B8
VERT HOLD
HEIGHT
VERT LINEARITY
VERT MULT VERT OUTPUT V6 12L6GT
DO NOT MEASURE
DEFLECTION YOKE
Vert - 12Ω
Horiz - 47Ω
HORIZ MULT V5 6CG7
HORIZ FREQ
HORIZ HOLD
HORIZ OUTPUT V10 12DQ6A
HV RECT V12 1X2B
BOOST 360V
DAMPER V11 19AU4GT
PICTURE TUBE V13 10ABP4
10K TRAP
(9.5-11KV) 10μA AVG
DENOTES CHASSIS GROUND
140V SOURCE
130V SOURCE
SW ON VOLUME CONTROL
19AU4GT 12DQ6A 12L6GT 12CA5 5CL8 3BC5 5B8
95VAC 75VAC 63VAC 51VAC 39VAC 34VAC 27VAC
5B8 6AW8A 3DT6 6CG7 10ABP4
21VAC 15VAC 12VAC 6VAC
HV TRANSFORMER TERMINAL BOARD (Viewed From Wiring Side Of Chassis)

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 56 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

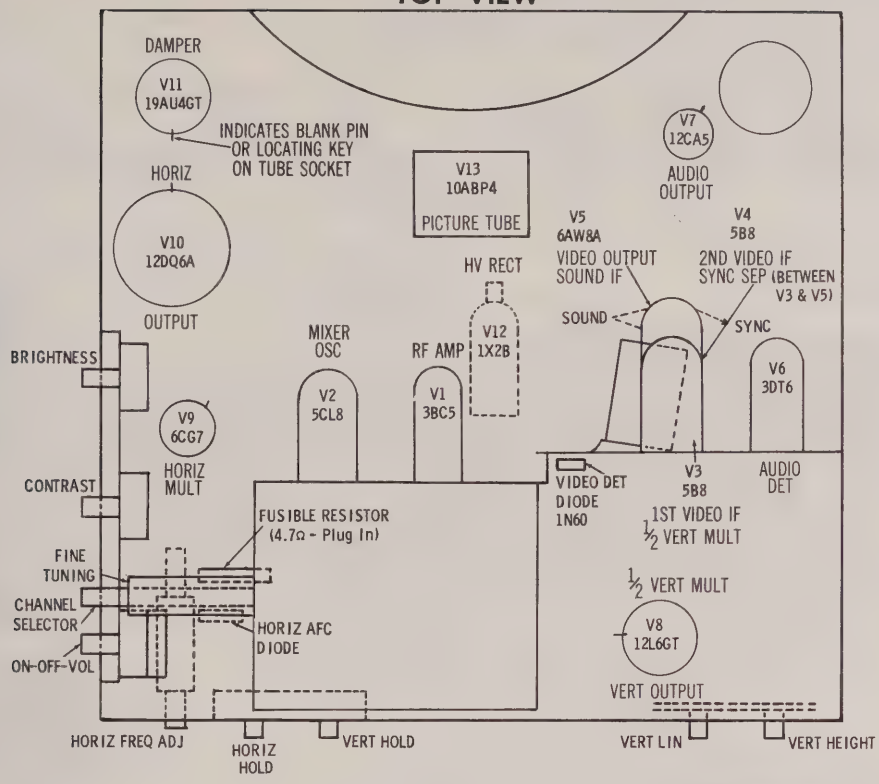
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

HALLICRAFTERS MODELS
10TS900T, 10TS901T (Ch. A2011, B2011)

TUBE PLACEMENT CHART

TOP VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

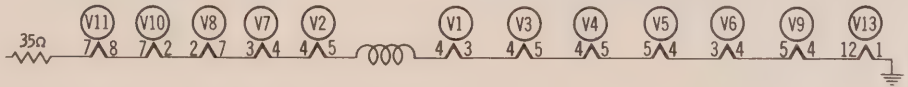
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R68), Rectifier (M1)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, Diode (M3), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V13**
Has pic, no sound - **V5, V6, V7**

SYNC FAILURE
No vert. sync - **V3, V4, V8**
No horiz. sync - **V4, Diode (M2), V9**
No vert. or horiz. sync - **V4**

SWEEP FAILURE
No raster, has sound - **M2, V9, V10, V11, V12, V13**
No vertical deflection - **V3, V8**
Poor vert. linearity or foldover - **V3, V8**
Poor horiz. linearity or foldover - **V9, V10, V11**
Narrow picture - **V9, V10, V11, M1**
Vert. off freq. - **V3, V4, V8**
Horiz. off freq. - **V4, M2, V9**

Since this receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to point (A). Positive to chassis.
Disable oscillator by replacing Mixer-Osc. tube 5CL8 (V2) with a 5CL8 with pin 1 removed.
Short the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF ceramic capacitor	High side to point (B). Low side to chassis.	44.0MC (10MC Swp)	42.75MC 45.75MC	Any channel.	Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V3). Low side to chassis.	A1, A2	Adjust for response similar to Fig. 2 with markers in proper positions.
2.	"	High side to pin 6 (grid) of 5B8 (V3). Low side to chassis.	"	"	"	Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V4). Low side to chassis.	A3, A4	"
3.	"	High side to pin 6 (grid) of 5B8 (V4). Low side to chassis.	"	"	"	Vert. amp. to point (C). Low side to chassis.	A5, A6	"
4.	"	High side to point B. Low side to chassis.	"	"	"	"		Retouch A1 thru A6 as needed to correct for curve similar to Fig. 3. Remove bias and replace 5CL8 (V2).

SOUND IF ALIGNMENT

Set the contrast control fully clockwise. Set volume control at midrange.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1000MMF ceramic capacitor	High side to point (C). Low side to chassis.	Not used.	4.5MC (400∿ 30% AM Mod)	Any non-interfering channel.	Vert. amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A7, A8	Turn A7 fully counter clockwise. Turn A8 fully clockwise. Turn A7 clockwise for MINIMUM 400∿ indication on scope.
6.	"	"	4.5MC (15KC Swp)	Not used.	"	Across secondary of output transformer.	A8, A9, A10	Use only enough sweep generator output to provide usable pattern on scope. Turn A10 fully counter clockwise. Adjust A8, A9 and A10 for maximum indication on scope. Remove test equipment and tune in a TV station. Retouch A10 for MINIMUM buzz.

OSCILLATOR ALIGNMENT

Turn the set on and tune in the highest band channel (7-13) operating in the area and adjust A11 for clearest picture and best sound. A11 is located to the left and SLIGHTLY above the tuning shaft. Switch the channel selector to the highest low band channel (2-6) operating in the area and adjust A12 for clearest sound and best picture. A12 is located directly to the right of the tuner shaft.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

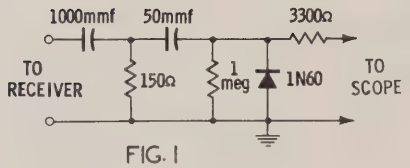


FIG. 1

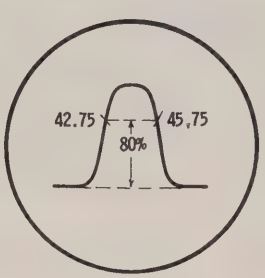


FIG. 2

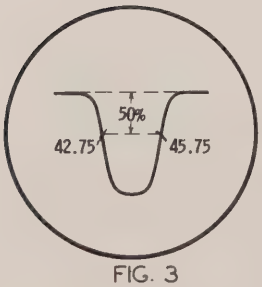


FIG. 3

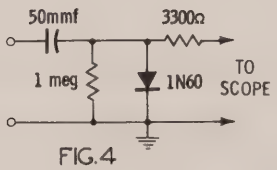


FIG. 4

OF
NSHIP
DENVER, COLORADO

CHASSIS TOP VIEW

HALLICRAFTERS MODELS
10TS900T, 10TS901T (Ch. A2011, B2011)

FOLDER 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amp.	3BC5	
V2	Mixer-Osc.	5CL8	
V3	1st Video IF - Vert. Mult.	5B8	
V4	2nd Video IF - Sync Sep.	5B8	
V5	Video Output-Sound IF	6AW8A	
V6	Audio Det.	3DT6	

ITEM No	USE	TYPE	NOTES
V7	Audio Output	12CA5	
V8	Vert. Mult. - Vert. Output	12L6GT	
V9	Horiz. Mult.	6CG7	
V10	Horiz. Output	12DQ6A	
V11	Damper	18AU4GT	
V12	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	Hallicrafters PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V13	10ABP4		10ABP4B	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	Hallicrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	200	150	45A392	PR3-013		WT320	CDST-1015	D-095 MT-1510	R3294 *
B	250	150							
C	10	150							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP	VOLT	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C2	2.0										
C3	470		47A396	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47		
C4	5			BPD-81 5	TCZ-4RT	C10Y5C	TCO-5	ZT-5547	5TCCB-Y5		
C5	1000		47-503	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C6	1000			EF-001	MFT-1000				5G3C-D1		
C7	47		47CA30A470M	BPD-00047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47		
C8	1.5			NP0-81 1 5	TCZ-1R5	C10Y15C	TCO-1 5	ZT-5515	5TCCB-Y15		
C9	.24										
C10	.38										
C11	15			BPD-000015	DD-150	L10Q15	ED-15	UC-5415	5GA-Q15		
C12											
C13	100										
C14	2.0			NP0-81 2.2	TCZ-2.2	C10Y2C	TCO-2				
C15	15										N1000
C16	10			NP0-81 10	TCZ-10	C10Q1C	TCO-10	ET-541	5TCC-Q1		
C17	1000			EF-001	MFT-1000				5G3C-D1		
C18	1000		47-503	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C19	100										
C20	1000			EF-001	MFT-1000				5G3C-D1		
C21	1000		47-503	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C22	1000		47-503	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C23	1000			EF-001	MFT-1000				5G3C-D1		
C24	330		47A341	BPD-00033	DD-331	C10T33	ED-330	UC-5333	5GA-T33		
C25	470		47A343	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47		
C26	1000		47A342	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C27	4.7		47B403-6	NP0-81 4.7	TCZ-4RT	C10Y47C	TCO-4.7	ZT-555	5TCCB-Y47		
C28	10		47CA30A100K	ET-10	DE-100	L7Q1	GP-10	UC-541	5GA-Q1		
C29	.047	180	46D618-473M3	P268N-047	DF-503	CUBE47		GEM-4147	2TM-S47		N75
C30	68		47-635								
C31	.1	300	46D618-104M2	P268N-1	DF-104	CUB2P1		GEM-301	2TM-P1		
C32	1000		47A230	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C33	.22	100	46D616-224M1	P268N-22		CUB1P22		GEM-3122	2TM-P22		
C34	10		47A160-11	S1 10	D6-100	L7Q1	GP-10	UC-541	5GA-Q1		N75
C35	22		47-634								
C36	47		47CA30A470M	S1 47	D6-470	L7Q47	GP-47	UC-5447	5GA-Q47		
C37	3		47A307	S1 3	D6-030	L7E3	TCO-3	ZT-553			
C38	10000		47A234	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1		
C39	1000		47A230	BPD-001	DD-103	BYA6D1	ED-1000	DC521	5HK-D1		
C40	1000		47A230	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1		
C41	10000		47A224	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1		
C42	15		47B480								N080
C43	.047	100	46D618-473M2	BPD-05	DF-503	CUB3S47		GEM-3147	2TM-S47		
C44	10000		47A234	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1		
C45	10000		47A234	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1		
C46	820		47-606	BPD-0008	D6-821	L10T82	ED-820	UC-5382	5GA-T82		
C47	2000		47A395	BPD-002	DD-203	BYA10D2	ED-002	DC522	5HK-D2		
C48	.082	200									
C49	.033	300		P268N-033	DF-303	CUB3S33		GEM-4133	2TM-S33		
C50	10000	2000	47-708					GEM-3101	DL-810		
C51	1000		47-503	BPD-001	DD-102	BYA6D1	ED-001	DC521	5HK-D1		
C52	.0039	100	46BR392E4	BPD-004	D6-402	CUB2D39	GP-4000	GEM-524	6TM-D4		
C53	100		47CA30A101M	S1 100	D6-101	L7E1	GP-100	UC-531	5GA-T1		
C54	47		47CA30A470M	S1 47	D6-470	L7Q47	GP-47	UC-5447	5GA-Q47		
C55	1000		47A586	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1		
C56	.0047	300	46D618-472K2	BPD-0047	DF-472	CUB2D47	GP-4700	GEM-4247	6TM-D47		
C57	1000		47A586	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1		
C58	.1	100	46D616-104M2	P268N-1	DF-104	CUB2P1		GEM-301	2TM-P1		
C59	.0056	400	46BR562E4	P488N-005	D6-562	CUB6D5	GP-5600	GEM-425	6TM-D5		
C60	330		47X20D33LK	1464-00033		SW5733			M5-333		
C61	680		47X20B68LK	1464-00068		SW5768			M5-347		
C62	470		47A638	BPD-00047	DD-471	BYA107-47	ED-470	UC-5347	5GA-T47		
C63	.15	600	46D618-154M6	P688N-15		CUB6P15		GEM-6015	6TM-P15		
C64	130	3000	47-640		DD30-121	BV130712			30GA-T12		
C65	56	2000	47A637		DD30-56	HV A20Q56	HD3-56	DC30456	30GA-Q56		
C66	.22	600		P488N-22		CUB6P22		GEM-6022	6TM-P22		
C67	1000		47A230	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1		
C68	10000		47A234	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1		
C69	.22	300	46D618-224M3	P268N-22		CUB3P22		GEM-3022	2TM-P22		
C70	.22	600	46D618-224M6	P688N-22		CUB6P22		GEM-6022	6TM-P22		
C71	.1	300	46D616-104M3	P268N-1	DF-104	CUB2P1		GEM-301	2TM-P1		

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	Hallicrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	330K	½	26R1400	B-80	A47-300K-Z	Q3-133	TA334A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWS-13	T6-1	U6-36	
R2A	1500Ω	½	26R1399	AB-515		Q1-109	U8	Contrast
B	Shaft			AK-3		Not Req.	Not Req.	
R3A	5Meg	½	26R1401	AB-58		Q7-141	TA56R	Brightness
B	Shaft			AK-3		Not Req.	Not Req.	
R4A	75K	½	26R1403	AB-38	A47-75K-S	Q1-135	PTA18L	Horiz. Hold
B	Shaft			AK-19	RN-3	TQ	Not Req.	
C	1.5Meg	½		AB-743	A47-1.5Meg-S	Q1-138	PTA28L	Vert. Hold
D	Shaft			AK-19	RN-3	TQ	Not Req.	
R5A	2Meg	½	26R1404	AB-75	A47-2Meg-S			Vert. Lin.
B	Shaft			AK-18	RN-3			
C	5Meg	½		AB-96	A47-4Meg-S			Height With 1Meg stop
D	Shaft			AK-19 *	RN-3 *			

* Use a 1Meg resistor in series with the right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise specified.

ITEM No.	RATING		Hallicrafters PART No.	NOTES
	OHMS	WATT		
R7	220K		23X20X224K	
R8	12K		23X20X123K	
R9	4700Ω		23X20X472K	
R10	4700Ω		23X20X472K	
R11	220K		23X20X224K	
R13	2200Ω		23X20X222K	
R13	4700Ω		23X20X472K	
R14	15K		23X20X153K	
R15	330Ω		23X20X331K	
R16	1Meg		23X20X105K	
R17	10K		23X20X103K	
R18	150Ω		23X20X151K	
R19	56Ω		23X20X560K	
R20	150Ω		23X20X151K	
R21	180Ω		23X20X181K	
R23	6800Ω		23X20X682K	
R23	2.7Meg		23X20X275K	
R24	3.3Meg		23X20X335K	
R25	3300Ω	7	24A123	
R26	27K		23X20X273K	
R27	120K		23X20X124K	
R28	100K		23X20X104K	
R29	33K		23X20X333K	
R30	680K		23X20X684K	
R31	270K		23X20X274K	
R32	680K		23X20X684K	
R33	680Ω		23X20X681K	
R34	3300Ω		23X20X222K	
R35	120Ω		23X20X121K	
R36	27K	1	23X20X273K	
R37	180Ω		23X20X181K	

ITEM No.	RATING		Hallicrafters PART No.	NOTES
	OHMS	WATT		
R38	15K		23X20X153K	
R39	12K	1	23X20X123K	
R40	18K	1	23X20X183K	
R41	68K		23X20X683K	
R42	100K		23X20X104K	
R43	470K		23X20X474K	
R44	180K		23X20X184K	
R45	100K		23X20X104K	
R46	100K		23X20X104K	
R47	100K		23X20X104K	
R48	1.5Meg		23X20X155K	
R49	180Ω		23X20X181K	
R50	180Ω		23X20X181K	
R51	220K		23X20X224K	
R52	1Meg		23X20X105K	
R53	4700Ω		23X20X472K	
R54	1Meg		23X20X105K	
R55	1Meg		23X20X105K	
R56	82K		23X20X823K	
R57	12K		23X20X123K	
R58	56K		23X20X563K	Note 1
R59	47K		23X20X473K	
R60	390K		23X20X394K	
R61	12000Ω 5%		23X20X1252	
R62	3300Ω		23X20X332K	
R63	390K		23X20X394K	
R64	47K		23X20X473K	
R65	180Ω		23X20X181K	
R66	6800Ω		23X20X682K	
R67	35Ω	10	24-1066	
R68	4.7Ω	5	24B1118	

Note 1. Some versions may use a 75K, 68K, 62K or an 82K paralleled by a 150K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		Hallicrafters PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T1	Horiz. Output Trans.	55-307							
T2	Vert. Output Trans.	55-308	Z1900 ①						
T3A	Yoke - Horiz. (24.5MH) (90°) Vert. (11.5MH)	53-398							
M5	Rear Cover & Centering Device	21-286							

① Connect #1 to plate, #2 to screen, #7 to yoke terminal #4, #10 to yoke terminal #6.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Hallicrafters PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	85C196	3A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Hallicrafters PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st Video IF	51-2157				
L2	2nd Video IF	51-2158				
L3	3rd Video IF	80-586				
L4	RF Choke	53A307	19-1006		4624	16 Microhenries
L5	Shunt Peaking Coil	51-2102	19-3860		6148	710 Microhenries
L6A	4.5MC Trap	80H20B				
B	1st Sound IF				6134a	395 Microhenries; Wound on 3900Ω resistor.
L7	Shunt Peaking Coil	51-2101	19-4400a			
L8	Series Peaking Coil	51-2184	19-3160 *		6120 *	160 Microhenries, wound on 27K resistor
L9	2nd Sound IF	51-2166				
L10	Quadrature Coil	51B1857			1480	
L11	RF Choke	53-343				7.5 Microhenries; IRC part #CL-A

▲ Parallel with 3900Ω resistor.
* Parallel with 27K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Hallicrafters PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No.	
LJ2			51-2169	19-1575		6110 ①		22S-4	

① Enlarge mounting hole. A 3900MMF capacitor may have to be used in place of .0056MFD (C59).

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C RESISTANCE	INDUCTANCE @ CURRENT 1000 ~	Hallicrafters PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No
LJ3	270A	21Ω	.5 HY	56A351				26C44 ①	C-37X

① Drill new mounting holes.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Hallicrafters PART No.	REPLACEMENT DATA	
E1	Sync Coupler	270MMF, 25MMF, 10000MMF, 250K, 3.5Meg	48A048	Aerovox Centralab Sprague	PA-533 PC-382 ST-3

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	Hallicrafters PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	280A	27C238 ①	1023A ▼	1N007 ②	RS350B1 ①	350A ①	① Selenium type
M2		27C236 ①	1215 ① ③		1T1 ① ③		② Germanium type ③ 2 Required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Hallicrafters PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60	19C1564 *	1N60	1N60	Video Detector (Pigtail)

* Alternate part #19C1980.

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M4	Tuner	1-3067	VHF, Ch. A301
	Tuner	1D3051	UHF-VHF, Ch. B301
M5	Centering Device	21-286	Includes yoke rear cover
M6	Ion Trap	21-151	

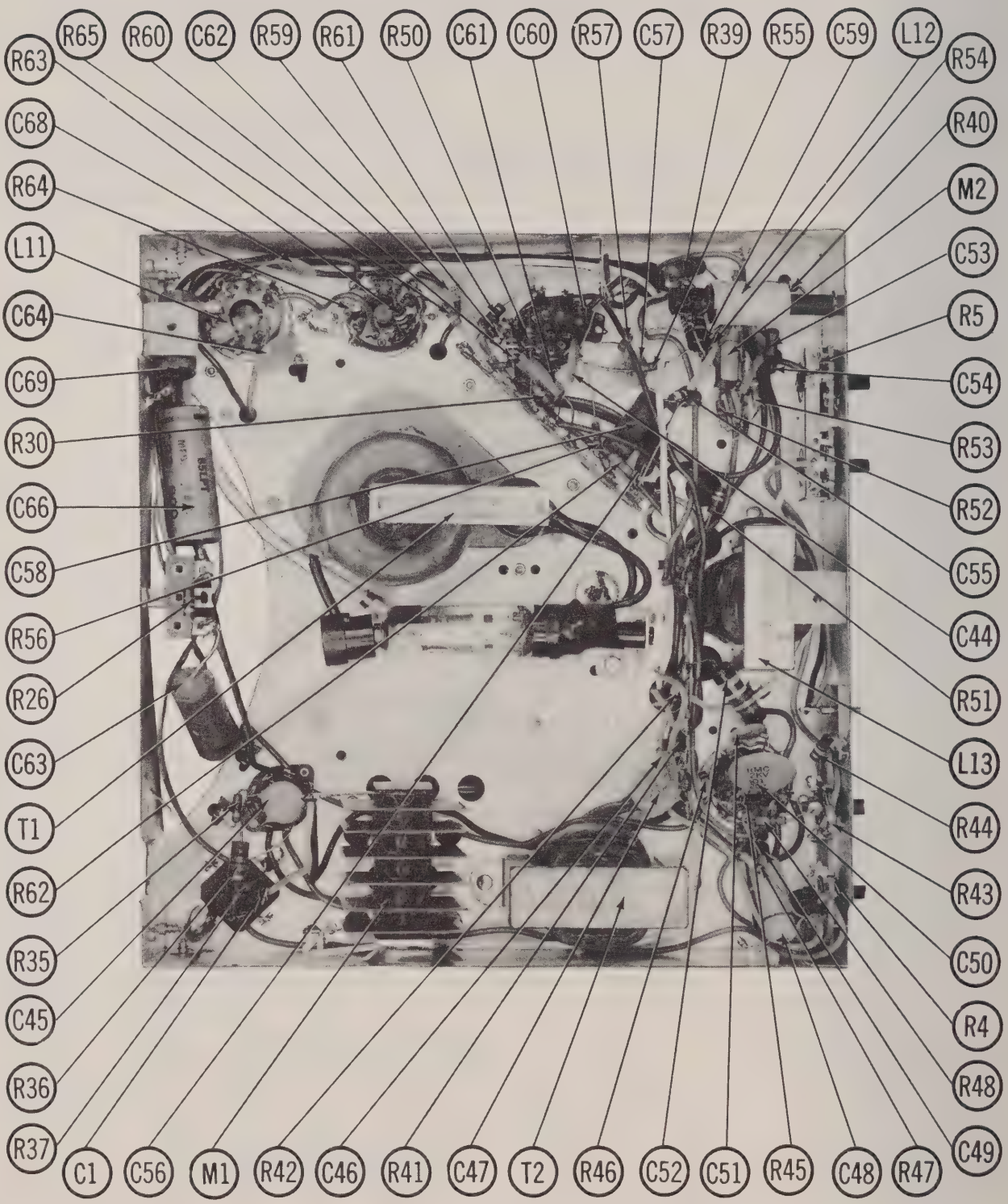
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO	DESCRIPTION
Safety Glass	22D535	
Handle	41-6018	
Knob	15A5040	Channel Selector, Model 10TS900T
Knob	15C1058	Fine Tuning, Model 10TS900T
Knob	88A3078	VHF Channel Selector, Model 10TS901T
Knob	15A5072	Fine Tuning, Model 10TS901T
Knob	15C985	UHF Channel Selector , Model 10TS901T
UHF Dial	15C986	Model 10TS901T
Knob	15B1057	Control (Grey)
Knob	15A1063	Control

HALLICRAFTERS MODELS 10TS900T, 10TS901T (Ch. A2011, B2011)

FOLDER 3



CHASSIS-BOTTOM VIEW

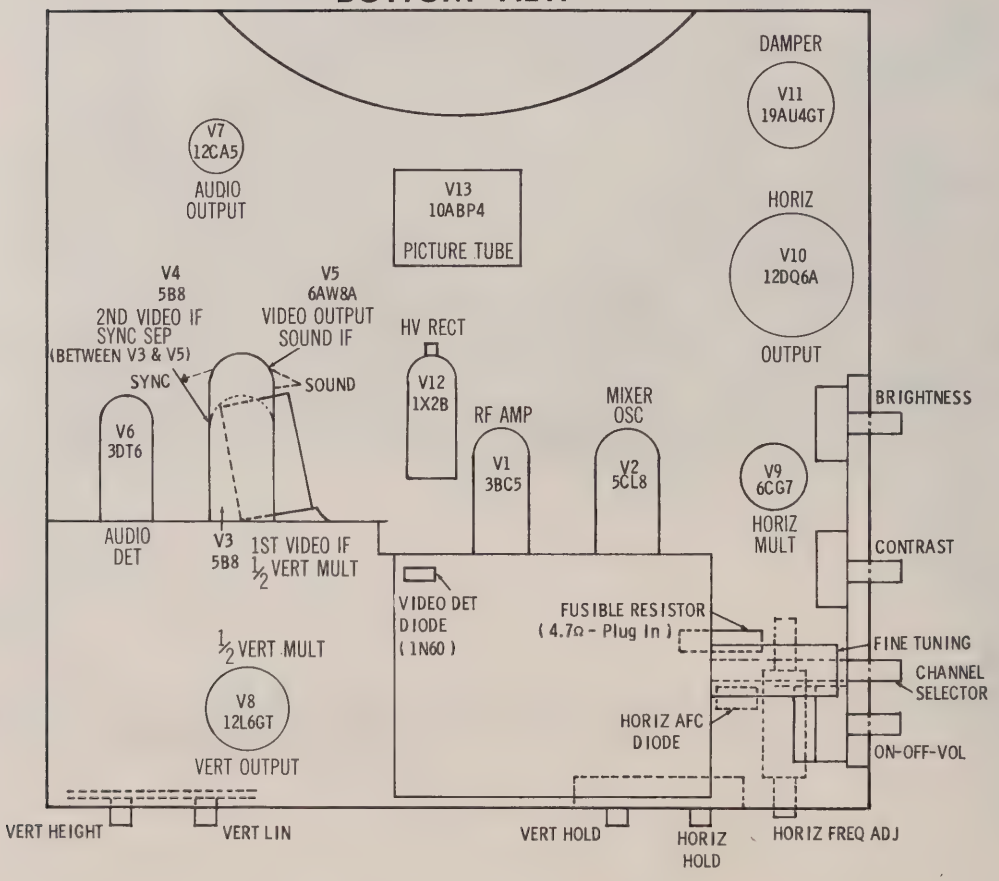
HALLICRAFTERS MODELS
10TS900T, 10TS901T (Ch. A2011, B2011)
ALTERNATE TUNER SCHEMATIC
FOLDER 3
MIXER 5U8
TEST POINT
TEST POINT
RF AMP 5BK7A
OSC 5U8
5BK7A 5U8
FINE TUNING
CHANNEL SELECTOR SWITCH SWITCH IN CHANNEL 13 POSITION
2AF4A
Tuner Part # 103051
Cathy

RESISTANCE MEASUREMENTS

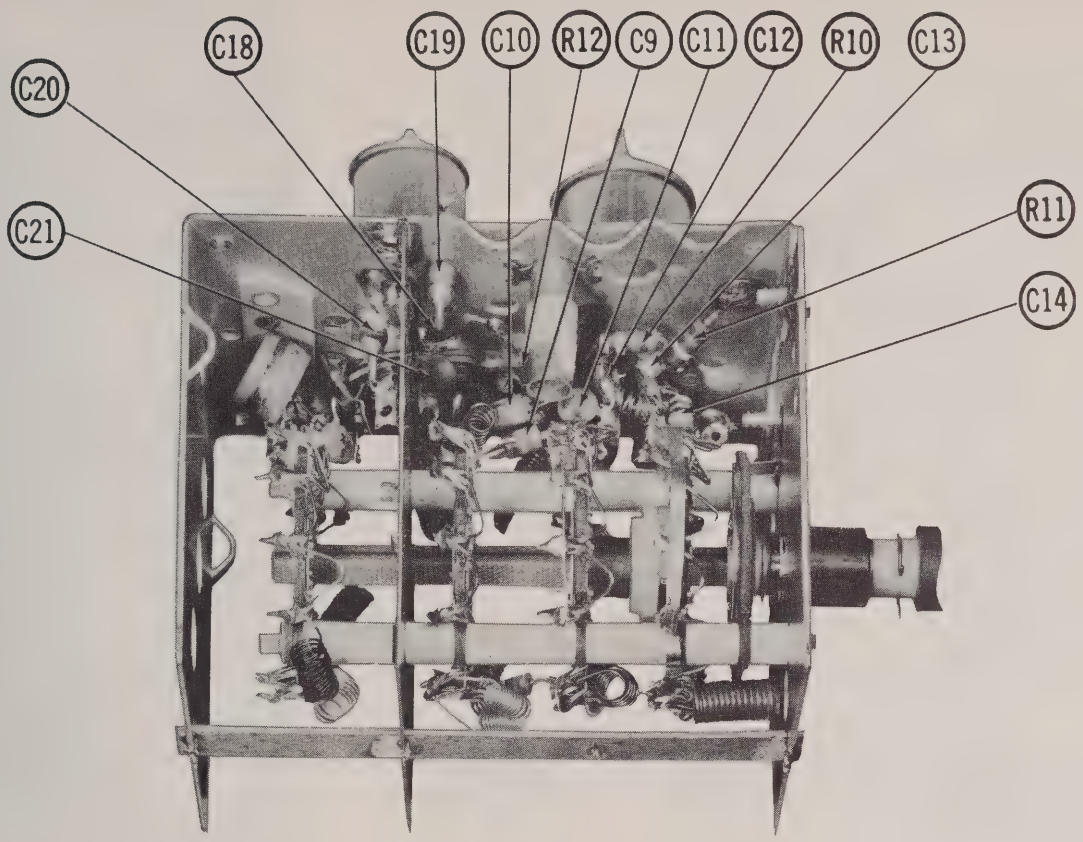
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	6.5Ω	7Ω	† 240Ω	† 5000Ω	0Ω		
V2	5CL8	15K	† 5000Ω	0Ω	7.5Ω	7Ω	† 2400Ω	† 240Ω	0Ω	220K
V3	5B8	0Ω	• 1.3Meg	•† 2.7Meg	6.5Ω	6.5Ω	1Meg	56Ω	† 170Ω	† 170Ω
V4	5B8	0Ω	2.2Meg	† 12K	5.5Ω	5Ω	0Ω	180Ω	† 170Ω	† 170Ω
V5	6AW8A	0Ω	100K	† 35K	3.5Ω	5Ω	• 10Ω	1.4Meg	† 22Ω	† 3300Ω
V6	3DT6	4.2Ω	680Ω	† 3.5Ω	3Ω	‡700K	† 2200Ω	680K		
V7	12CA5	120Ω	270K	9Ω	7.5Ω	270K	† 22Ω	† 430Ω		
V8	12L6GTB	TP	10.5Ω	† 260Ω	† 22Ω	•2.3Meg	TP	9Ω	0Ω	
V9	6CG7	† 47K	• 75K	1200Ω	1.5Ω	3Ω	† 12K	1.8Meg	1200Ω	
V10	12DQ6A	TP	10.5Ω	TP	† 200Ω	440K	TP	11.5Ω	0Ω	TOP CAP ‡13Ω
V11	19AU4GT	NC	TP	480K	NC	† 22Ω	TP	13Ω	11.5Ω	
V12	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡453Ω
V13	10ABP4	0Ω	3Ω	PIN 6 ‡27K	PIN 10 ‡27K	PIN 11 • † 120K	PIN 12 1.5Ω			

† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V11.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT

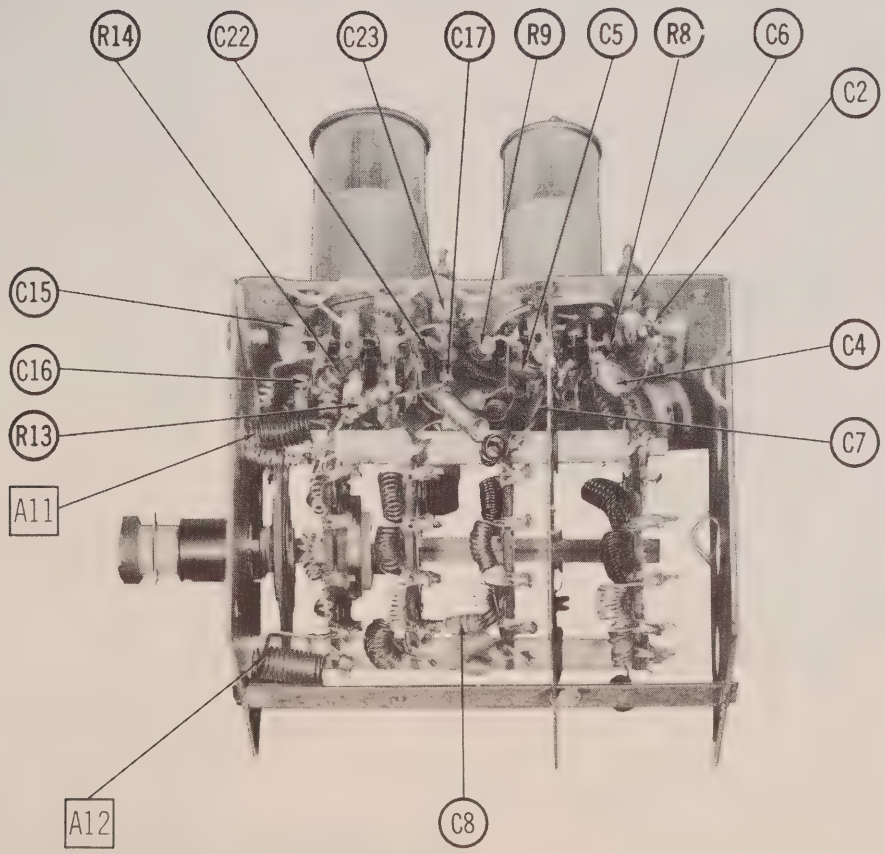
BOTTOM VIEW



TUBE PLACEMENT CHART

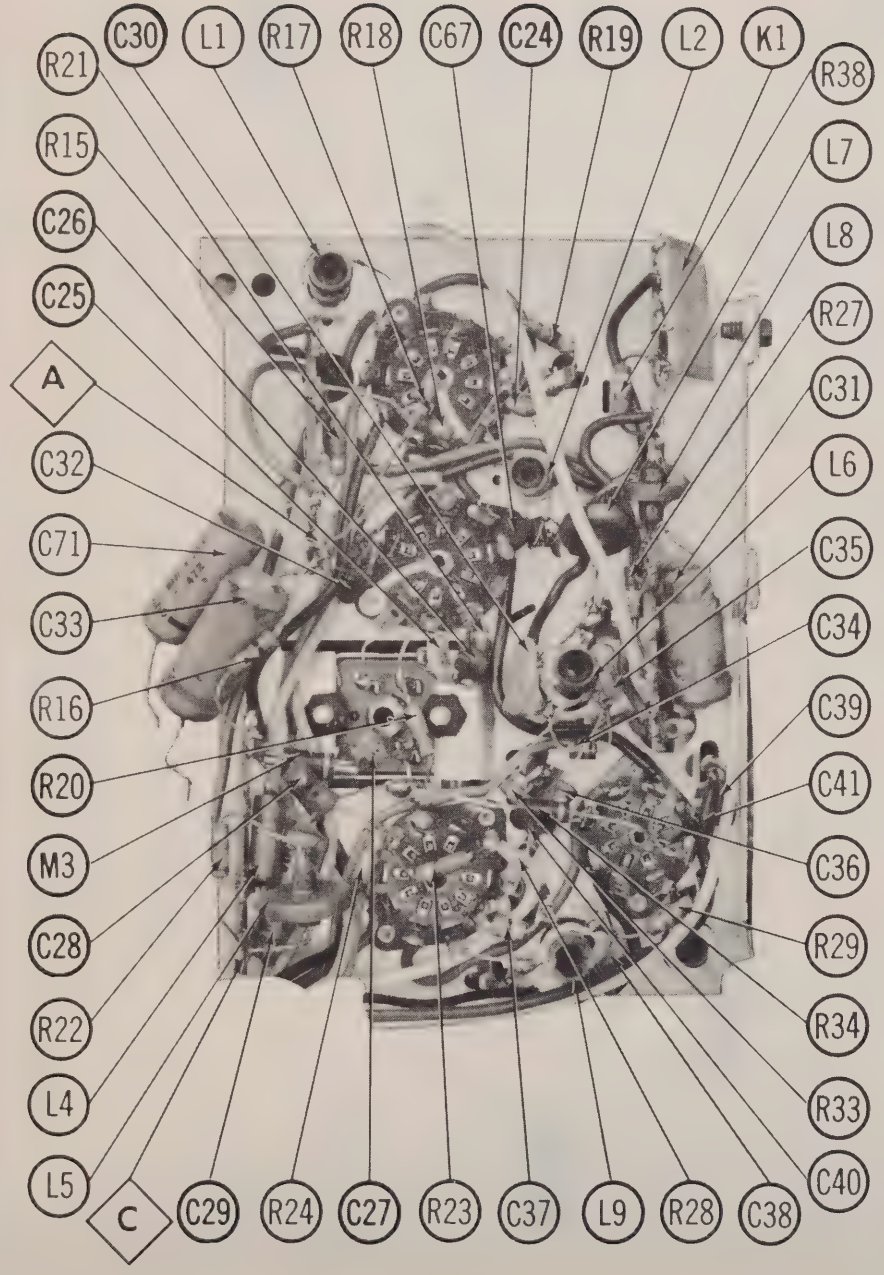


RF TUNER-LEFT SIDE

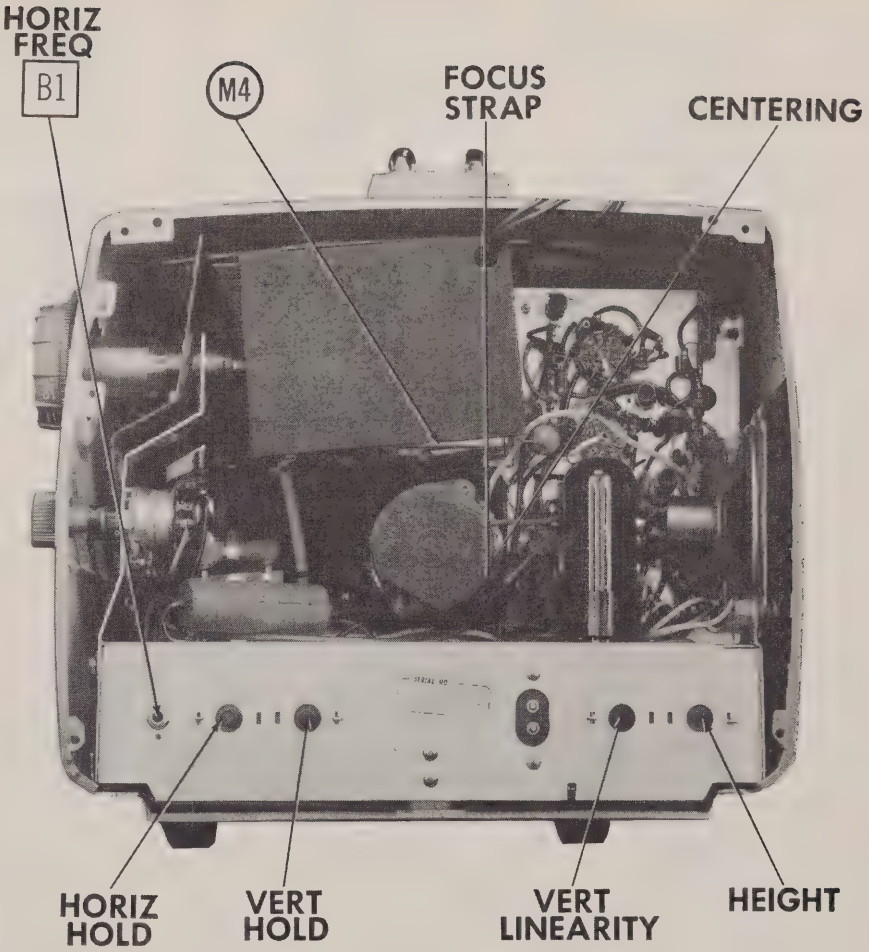


RF TUNER-RIGHT SIDE

FOLDER 3



VERTICAL CHASSIS



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
3. Check other stations and if necessary, retouch B1 for best sync action on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the side.
2. Remove 2 metal screws and antenna terminal board.
3. Remove 9 metal screws and the rear cover.
4. Remove 2 speaker leads.
5. Remove 4 metal screws and the cabinet top.
6. Remove 2 metal screws and the AC interlock.
7. Place receiver face down on a pad.
8. Remove the picture tube socket, ion trap, 4 yoke retainer springs, yoke retainer and HV lead.
9. Remove 2 chassis bolts from the bottom.
10. Remove 2 chassis bolts from the sides.
11. Remove chassis and yoke.
12. Remove the picture tube.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

OF
E. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	Olympic Models 17TZ90C, 17TZ90CU
MANUFACTURER	Olympic Radio & Television Inc., 34-01 38th. Ave., Long Island City, 1, N.Y.
TYPE SET	Television Receiver
TUBES	Twelve
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 125 Watts, 1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube and safety glass cleaning, it is necessary to remove the chassis. (See disassembly instructions).

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal oscillator coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 5.5Ω fusible resistor (R67) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

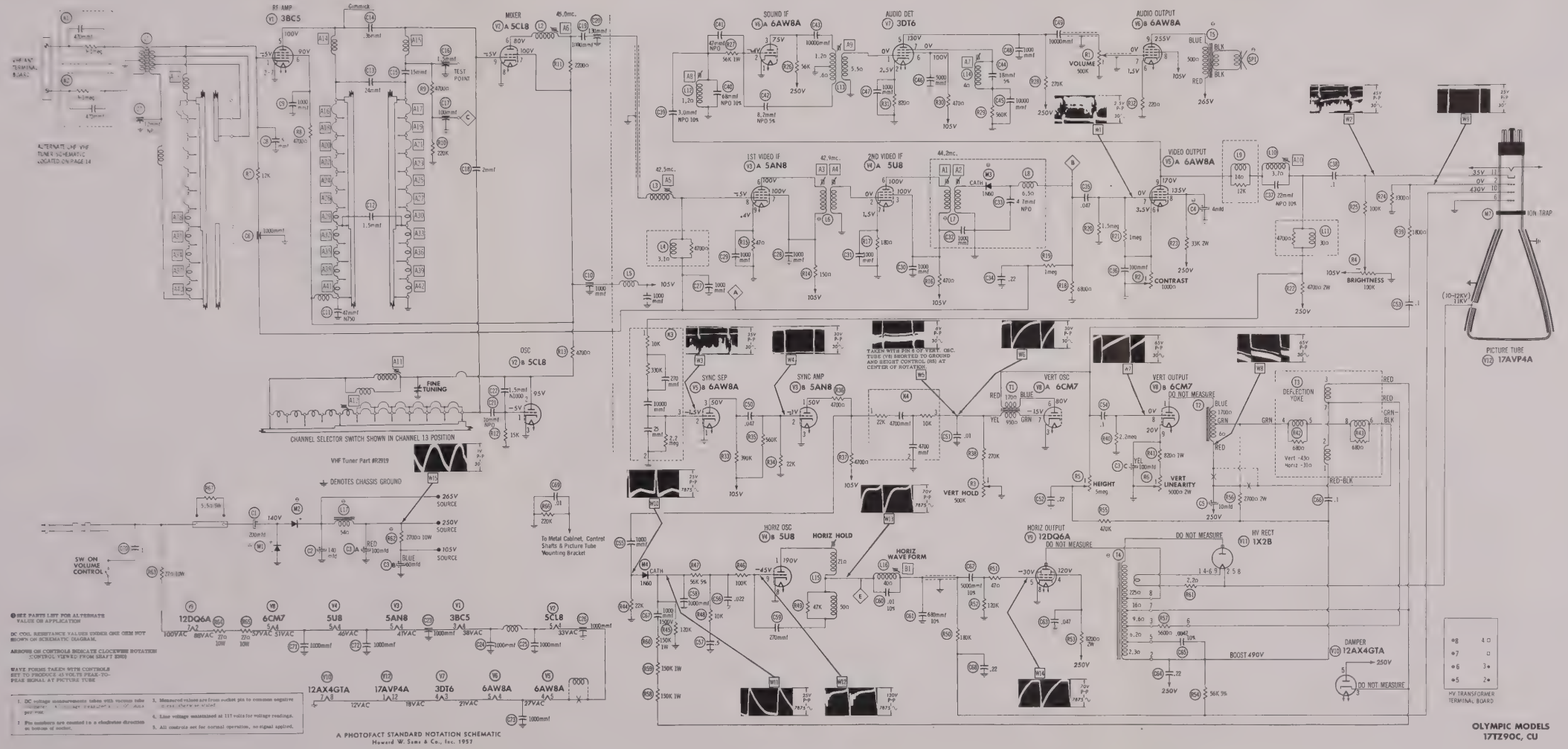
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

OLYMPIC MODELS
17TZ90C, CU

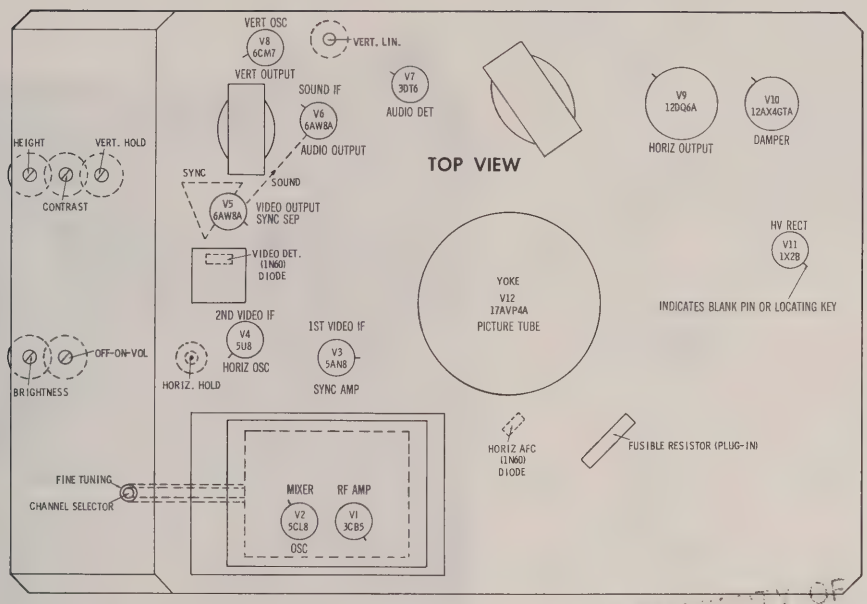
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H223

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


RF AMP
3BC5
Gimmick
MIXER
5CL8
45.0mc.
SOUND IF
6AW8A
AUDIO DET
3DT6
AUDIO OUTPUT
6AW8A
VOLUME
500K
1ST VIDEO IF
5AN8
42.5mc.
42.9mc.
2ND VIDEO IF
5U8
44.2mc.
VIDEO OUTPUT
6AW8A
CONTRAST
1000
BRIGHTNESS
100K
ION TRAP
PICTURE TUBE
17AVP4A
ALTERNATE UHF VHF TUNER SCHEMATIC LOCATED ON PAGE 14
TEST POINT
FINE TUNING
OSC
5CL8
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #R2919
DENOTES CHASSIS GROUND
SYNC SEP
6AW8A
SYNC AMP
5AN8
VERT OSC
6CM7
VERT OUTPUT
6CM7
DO NOT MEASURE
DEFLECTION YOKE
HEIGHT
5meg
VERT LINEARITY
5000Ω 2W
VERT HOLD
500K
HORIZ OSC
5U8
HORIZ HOLD
HORIZ WAVE FORM
HORIZ OUTPUT
12DQ6A
DO NOT MEASURE
HV RECT
1X2B
DAMPER
12AX4GTA
DO NOT MEASURE
BOOST 490V
265V SOURCE
250V SOURCE
105V SOURCE
SW ON VOLUME CONTROL
To Metal Cabinet, Control Shafts & Picture Tube Mounting Bracket
TAKEN WITH PIN 6 OF VERT. OSC. TUBE (V8) SHORTED TO GROUND AND HEIGHT CONTROL (R5) AT CENTER OF ROTATION
HV TRANSFORMER TERMINAL BOARD
12DQ6A 100VAC 88VAC
6CM7 57VAC 51VAC
5U8 46VAC
5AN8 41VAC
3BC5 38VAC
5CL8 33VAC
12AX4GTA 12VAC
17AVP4A 18VAC
3DT6 21VAC
6AW8A 27VAC
6AW8A
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 45 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Pin numbers are counted in a clockwise direction as bottom of socket.
3. Measured values are from socket pin to common negative point unless otherwise noted.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957
OLYMPIC MODELS
17TZ90C, CU

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

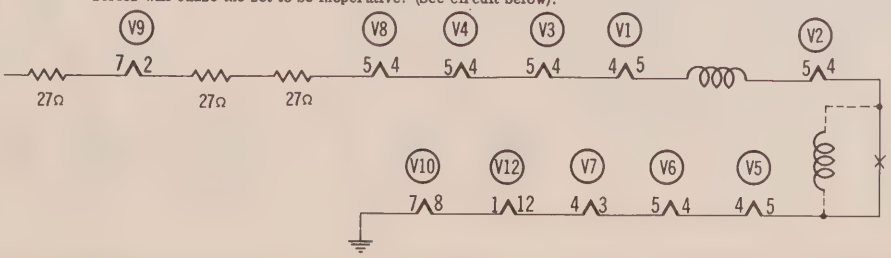
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R67), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, Diode (M3), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V12**
Has pic, no sound - **V6, V7**

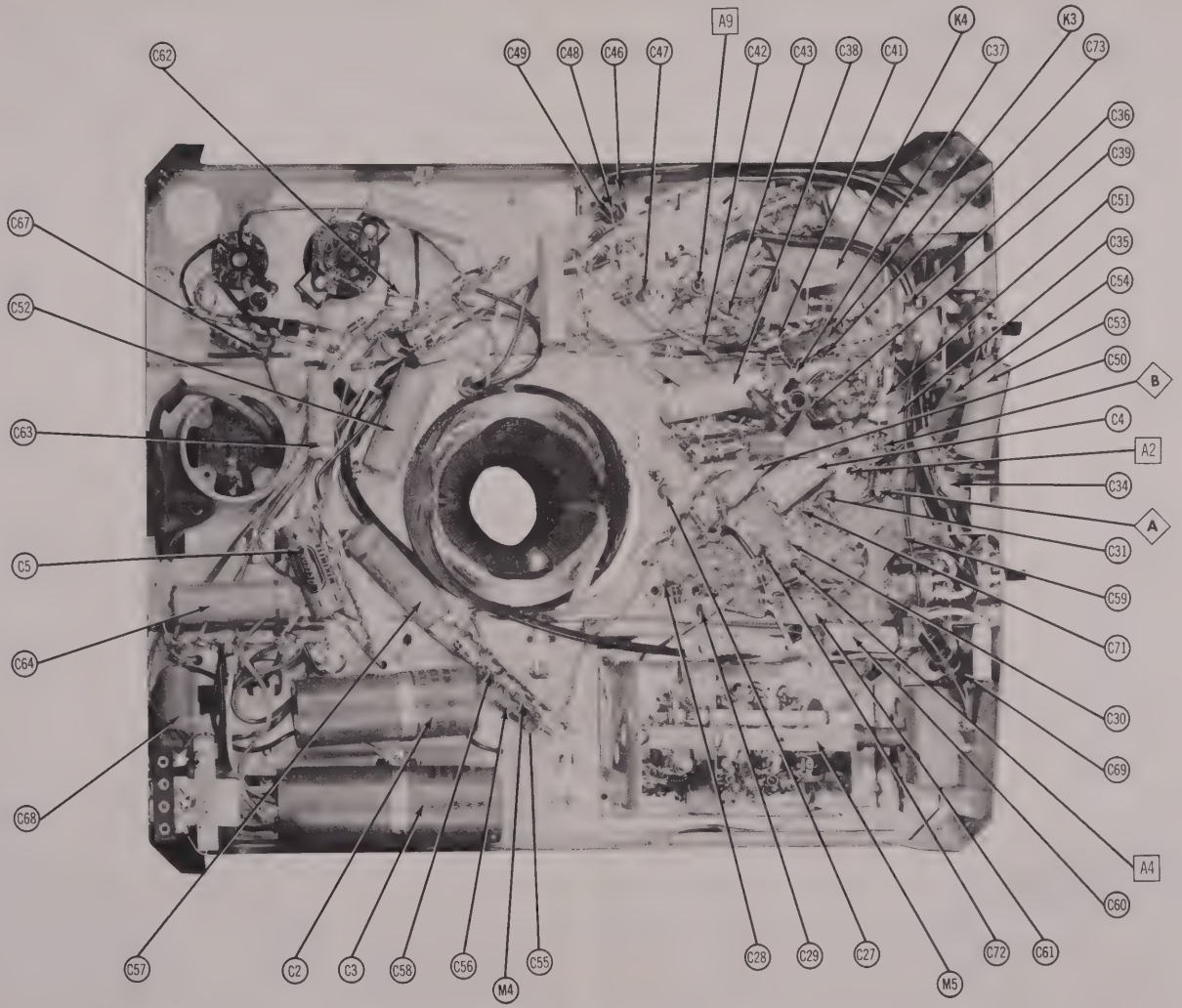
SYNC FAILURE
No vert. sync - **V5, V3**
No horiz. sync - **V5, V3, Diode (M4)**
No vert. or horiz. sync - **V5, V3**

SWEEP FAILURE
No raster, has sound - **M4, V4, V9, V10, V11, V12**
No vertical deflection - **V8**
Poor vert. linearity or foldover - **V8**
Poor horiz. linearity or foldover - **V4, V9, V10**
Narrow picture - **V4, V9, V10, M1, M2**
Vert. off freq. - **V8**
Horiz. off freq. - **V4**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).



SET 381 FOLDER 4



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of 3 volt bias supply to point Ⓐ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	44.2MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe to point Ⓑ Common to chassis.	A1, A2	Adjust for maximum deflection. Tune for peak with slugs farthest apart.
2.	"	"	"	42.9MC	"	"	A3, A4	"
3.	"	"	"	42.5MC	"	"	A5	Adjust for maximum deflection.
4.	"	"	"	45.0MC	"	"	A6	"
5.	"	"	44MC (10MC Swp)	41.25MC 42.6MC 45.75MC	"	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.		Check for response similar to Fig. 1 with markers as shown. Retouch A1 thru A6 SLIGHTLY to obtain desired response. More than 1 full turn on any adjustment should not be necessary.

SOUND IF ALIGNMENT

Turn the set on and tune in a strong TV signal. Adjust A7 for maximum volume. Disconnect the antenna and if necessary, use an attenuator in series with the antenna and receiver terminals to provide a weak signal. Adjust A8 and A9 for maximum volume. (A weak signal is necessary to make the peaks distinguishable). Reconnect the antenna directly for a strong signal and retouch A7 for maximum volume.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning until a 4.5MC beat pattern is visible in the picture. Turn A10 fully counter clockwise (from top of chassis), then clockwise until the horizontal scanning lines are smooth and continuous (beat disappears).

OSCILLATOR ALIGNMENT

Turn the set on and tune in the highest frequency high band channel (7-13) and set the fine tuning to the center of its range. Adjust the high band oscillator slug (A11) for best picture and sound.
Switch the channel selector to the highest frequency low band channel (2-6).
Adjust the low band oscillator slug (A12) for best picture and sound.

RF AND MIXER ALIGNMENT FOR TUNER #R2919

Connect bias as under "Video IF Alignment".
Tube shields must be extended.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Antenna coil increments are adjusted for maximum gain at the center of the response. On the low channels, there will be a small hump between markers. This is the antenna gain and should be centered between the markers.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓒ . Low side to chassis.	A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Adjust by expanding and compressing coil turns.
7.	"	"	207MC	205.25MC 209.75MC	12	"	A16, A17	"
8.	"	"	201MC	199.25MC 203.75MC	11	"	A18, A19	"
9.	"	"	195MC	193.25MC 197.75MC	10	"	A20, A21	"
10.	"	"	189MC	187.25MC 191.75MC	9	"	A22, A23	"
11.	"	"	183MC	181.25MC 185.75MC	8	"	A24, A25	"
12.	"	"	177MC	175.25MC 179.75MC	7	"	A26, A27	"
13.	"	"	85MC	83.25MC 87.75MC	6	"	A28, A29	"
14.	"	"	79MC	77.25MC 81.75MC	5	"	A31, A32, A33	
15.	"	"	69MC	67.25MC 71.75MC	4	"	A34, A35, A36	"
16.	"	"	63MC	61.25MC 65.75MC	3	"	A37, A38, A39	
17.	"	"	57MC	55.25MC 59.75MC	2	"	A40, A41, A42	"

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT FOR TUNER #R2758

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ . Positive to chassis.
Tube shield must be in place.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils are adjusted by compressing or expanding coil turns. If the coils are only loops, adjust by bending toward or away from the wafer.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
18.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓓ . Low side to chassis.	A43, A44, A45, A46	Adjust A43 and A44 for response similar to Fig. 2. A43 controls the high frequency side of response. A44 controls low frequency side. Adjust for correct bandpass by altering position of capacitor lead (A45) with respect to the ground return of mixer grid circuit. Closing the position will broaden the response and vice-versa. Adjust A46 for maximum gain.
19.	"	"	207MC	205.25MC 209.75MC	12	"	A47, A48, A49	Adjust in numerical order. First coil (plate coils) for high frequency side of curve, second coil (mixer grid coils) for low frequency side and third coil for maximum gain. (See Fig. 2).
20.	"	"	201MC	199.25MC 203.75MC	11	"	A50, A51, A52	"
21.	"	"	195MC	193.25MC 197.75MC	10	"	A53, A54, A55	"
22.	"	"	189MC	187.25MC 191.75MC	9	"	A56, A57, A58,	"
23.	"	"	183MC	181.25MC 185.75MC	8	"	A59, A60 A61	"
24.	"	"	177MC	175.25MC 179.75MC	7	"	A62, A63 A64	"
25.	"	"	85MC	83.25MC 87.75MC	6	"	A65, A66 A67	"
26.	"	"	79MC	77.25MC 81.75MC	5	"	A68, A69, A70	"
27.	"	"	69MC	67.25MC 71.75MC	4	"	A71, A72, A73	"
28.	"	"	63MC	61.25MC 65.75MC	3	"	A74, A75, A76	"
29.	"	"	57MC	55.25MC 59.75MC	2	"	A77, A78, A79	"

UHF OSCILLATOR ALIGNMENT

Switch the VHF tuner to the UHF position. Set the UHF tuner channel indicator to the highest frequency channel operating in the area.
Adjust A80 for best picture and sound.
Set the UHF dial to the lowest frequency channel operating in the area and adjust A81 for best picture and sound.

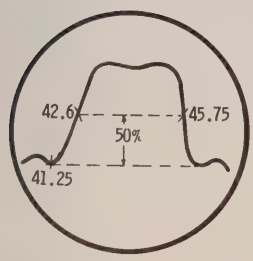


FIG. 1

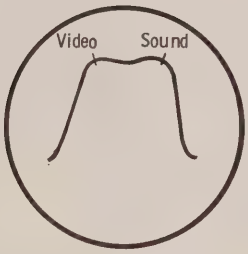


FIG. 2

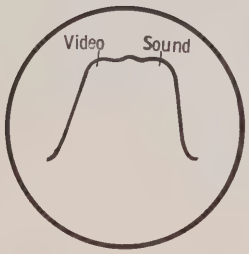
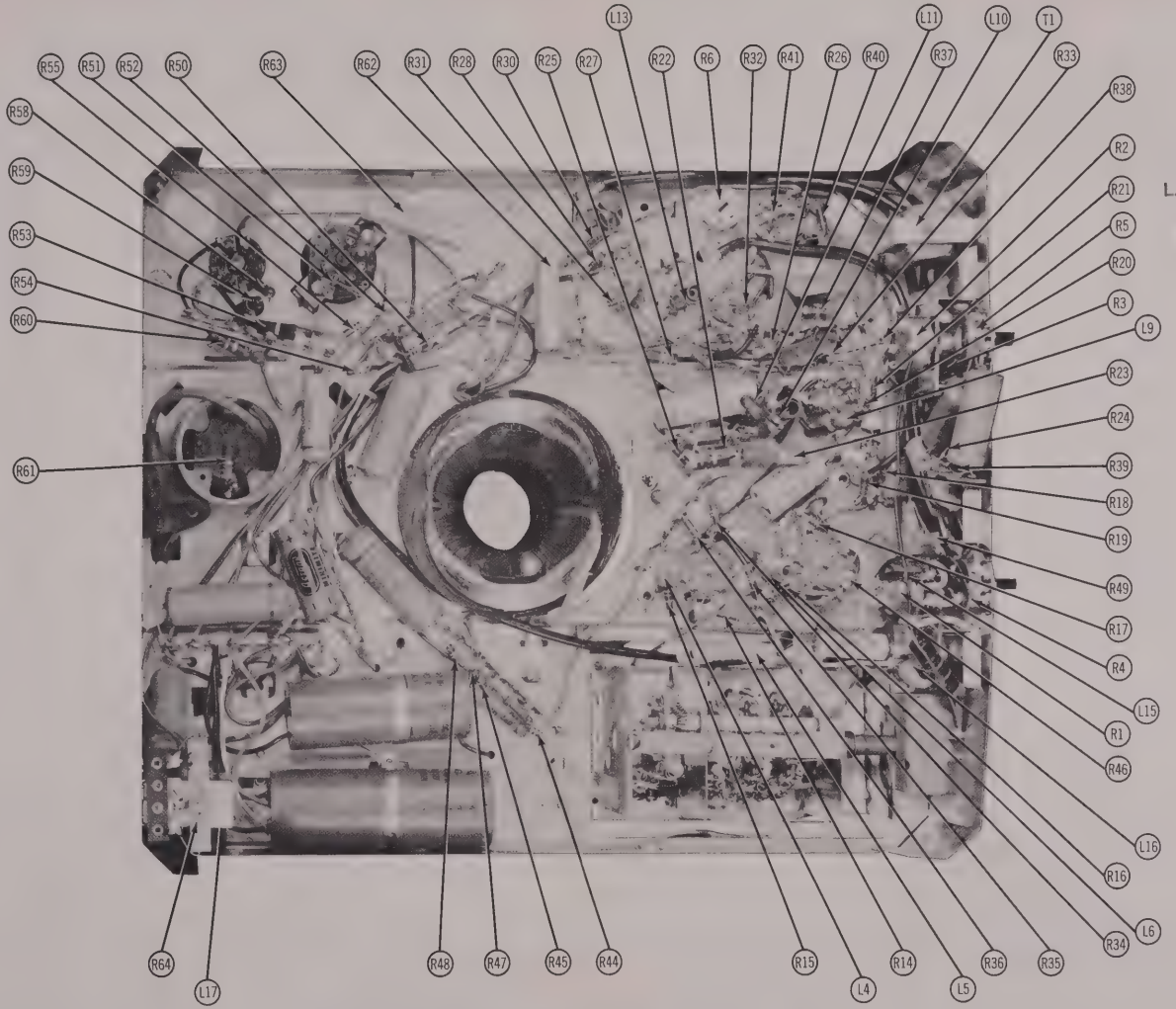


FIG. 3



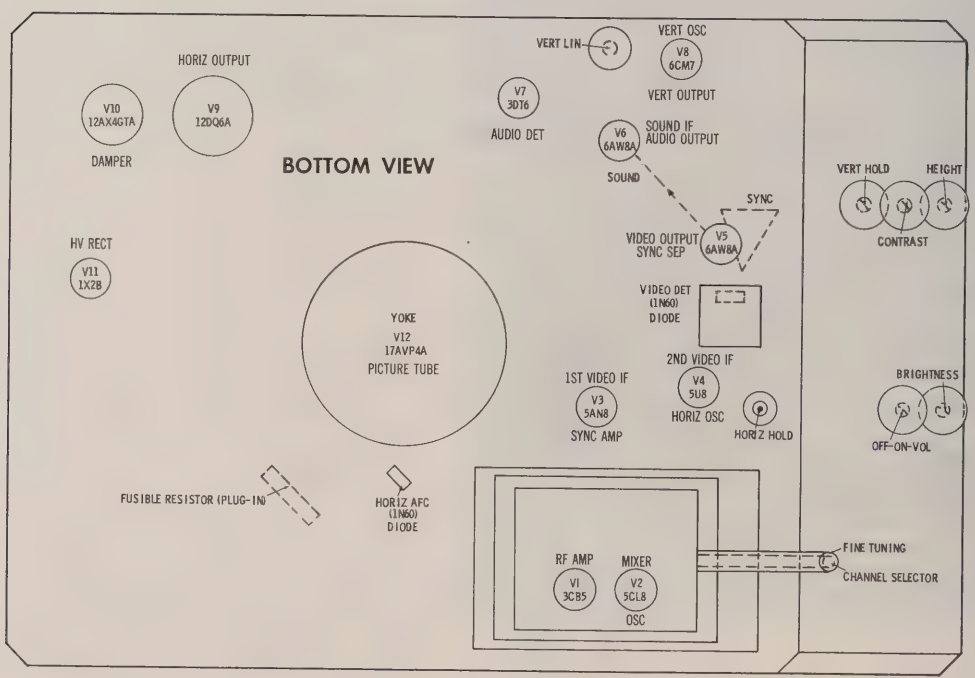
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	9.5Ω	9Ω	†2700Ω	†7400Ω	0Ω		
V2	5CL8	15K	†7400Ω	0Ω	8Ω	9Ω	†4900Ω	†2700Ω	0Ω	225K
V3	5AN8	†12K	20K	0Ω	9.5Ω	11Ω	†2800Ω	†2800Ω	1Meg	47Ω
V4	5U8	‡180K	.1Ω	†3200Ω	11Ω	13Ω	†3200Ω	180Ω	0Ω	270K
V5	6AW8A	0Ω	2.2Meg	†390K	6.5Ω	8Ω	• 170Ω	550K	†33K	†4800Ω
V6	6AW8A	0Ω	56K	†56K	6.5Ω	5Ω	220Ω	0Ω	†2700Ω	†500Ω
V7	3DT6	5.5Ω	820Ω	5Ω	4Ω	†270K	†3200Ω	560K		
V8	6CM7	‡4500Ω	NC	0Ω	13Ω	14.5Ω	• ‡1.7Meg	• 420K	2.2Meg	• 900Ω
V9	12DQ6A	NC	68Ω	TP	†8200Ω	120K	NC	70Ω	0Ω	TOP CAP ‡16Ω
V10	12AX4GTA	NC	NC	¶	NC	†54Ω	NC	0Ω	2.5Ω	
V11	1X2B	PINS 1 THRU HAVE INFINITE RESISTANCE								TOP CAP ‡241Ω
V12	17AVP4A	2.5Ω	3300Ω	PIN 6 0Ω	PIN 10 ‡56K	PIN 11 • 120K	PIN 12 4Ω			

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL PICTURE.
† MEASURED FROM 265V SOURCE.
‡ MEASURED FROM PIN 3 OF V10.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS TOP VIEW

OLYMPIC MODELS
17TZ90C, CU

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	3DC5	
V2	Mixer Oscillator	5CL8	
V3	1st Video IF Amp - Sync Amp	5AN8	
V4	2nd Video IF Amp - Horiz Osc	5U8	
V5	Video Output-Sync Sep	6AW8A	
V6	Sound IF Amp -Audio Output	6AW8A	
V7	Audio Detector	3DT6	
V8	Vert Osc. -Vert. Output	6CM7	
V9	Horiz. Output	12GG6A	
V10	Damper	12AX4GTA	
V11	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	OLYMPIC PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	
V12	17AVP4A	17AVP4A ①	17AVP4A ① 17ATP4A 17AVP4A ② 17AVP4 17ATP4 17AVP4	① Aluminized ② Silver screen -85
		17AVP4		

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	200	150	R-2128	PRL-07B	BR30015	WS342	TD-300-150	S-L10	TVA-1433
C2	140	300	R-2122	PRL-100	BBRD0836	WS427	TD-150-300	S-200	TVA-1575
C3A	100	300	R-2127	PR3-047		W7430		Q-231 ⑤	R2340 *
B	60	300						MT-0550	
C	100	50							
C4	4	300	R-2908 ①	PRS350V4	BR435	TC60	TD-4-450	MT-4504	TVA-1601
C5	10	300	R-2123	PRS350V10	BR1045	TC62	TD-10-450	MT-4510	TVA-1604

① Alternate part #CO1056
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C6	1000		244-1	EF-001	MFT-1000				503C-DI		
C7	12		245-10								NPO
C8	5			NPO-SI 5	DD-050	LL0V5	ED-5	ZT-555	5GA-V5		
C9	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C10	1000		244-1	EF-001	MFT-1000				503C-DI		
C11	47		233-470	N750-SI 47	TCM-47	CI0Q47U	TCT-47	NT-5447	STCU-Q47		N750
C12	1.5			NPO-SI 1.5	TCZ-1R5	CI0V15C	TCO-1.5	ZT-5515	STCCB-V15		
C13	1.96		2101-248								
C14	1.96		2101-368								
C15	15			NPO-DI 15	TCZ-15	C10Q15C	TCO-15	UC-5415	STCC-Q15		
C16	1.5		246-159								
C17	100		246-101								
C18	5		265-309			C10V3C					
C19	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C20	136		246-131								
C21	10		163-100	NPO-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	STCC-Q1		NPO N1000
C22	1.5		173-159								
C23	1000		244-1	EF-001	MFT-1000				503C-DI		
C24	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C25	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C26	1000		244-1	EF-001	MFT-1000				503C-DI		
C27	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C28	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C29	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C30	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C31	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C32	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C33	4.7			NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	STCCB-V47		NPO
C34	.22	200		P288N-223		CUB2F23		GEM-6032	47M-P22		
C35	.047	200		P288N-047	DF-503	CUB2S47		GEM-6147	47M-S47		
C36	100			SI 100	D8-101	L7E7I	GP-100	UC-531	5GA-T1		
C37	33			NPO-SI 33	TCZ-33	C10Q33C	TCO-33		STCC-Q33		NPO 10%
C38	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	47M-P1		
C39	3.0			NPO-SI 3	TCZ-3R3	C10V33C	TCO-3.3	ZT-5533	STCCB-V33		NPO 10%
C40	68			NPO-SI 68	TCZ-68	C10Q68C	TCO-68		STCC-Q68		NPO 10%
C41	47			NPO-SI 47	TCZ-47	C10Q47C	TCO-47	ZT-5447	STCC-Q47		NPO
C42	8.2		R-1441	NPO-SI 8.2		C10V82C	TCO-8.2				NPO 5%
C43	10000			BP3-DI	DD-103	BYA5SI	ED-DI	DC511	5HK-SI		
C44	18		R-2177		TCZ-18	C10Q18C	TCO-18				5%
C45	1000			BP3-DI	DD-103	BYA5SI	ED-DI	DC511	5HK-SI		
C46	5000			BP3-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5		
C47	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C48	1000			BP3-001	DD-103	BYA5DI	ED-1000	DC521	5HK-DI		
C49	10000			BP3-DI	DD-103	BYA5SI	ED-DI	DC511	5HK-SI		
C50	.047	200		P283N-047	DF-503	CUB2S47		GEM-6147	47M-S47		
C51	01	600	R-1480	P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1		
C52	.22	400		P488N-223		CUB4P22		GEM-4032	47M-P22		
C53	.1	400		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1		
C54	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	47M-P1		
C55	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C56	.022	400		P488N-023	DF-303	CUB4S23	ED-03	GEM-4123	47M-S23		
C57	5	200		P288N-5		CUB2P5		GEM-205	27M-P5		
C58	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C59	270		R-1439	1469-00037		SR5T37			MS-327		10%
C60	01	600	R-1450								10%
C61	680		R-2142	1464-00068		IR5T68			MS-368		10%
C62	5000			BP3-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5		
C63	047	600		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47		
C64	22	600		P688N-22		CUB6P22		GEM-6032	6TM-P22		
C65	.0047	600									10%
C66	300	300		P283N-1	DF-104	CUB2P1		GEM-301	27M-P1		
C67	1000	1500		HVD-15-1000	DD30-102	HVB16D1	HD15-1000	DC3021	30GA-D1		
C68	22	600		P688N-22		CUB6P22		GEM-6032	6TM-P22		
C69	01	600		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1		
C70	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	47M-P1		
C71	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C72	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		
C73	1000			BP3-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI		

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	R-2049	B-80-S	A47-500K-Z	QI3-133	U49	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req	
C	Switch			Not Req.	SWE-12	78-1	U8-26	
R2A	1000Ω	½	R-2050	AB-505		QI7-108	U3	Contrast
B	Shaft			AK-7		Not Req.	Not Req.	
R3A	500K	½	R-2048	AB-59	A47-500K-S	QI1-133		Vert. Hold
B	Shaft			AK-19	RM-3	TQ		
R4A	100K	½	R-2051	AB-40	A47-100K-S	QI1-128	PTA15L	Brightness
B	Shaft			AK-19	RM-3	TQ	Not Req.	
R5A	5Meg	½	R-2047	AB-87	A47-5Meg-S	QI-141	PTA5L	Height
B	Shaft			AK-19		TQ	Not Req.	
R6	5000Ω	2 (WW)	R-2046			39-5000		Vert. Lin.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed

ITEM No	RATING		OLYMPIC PART No	NOTES
	OHMS	WATT		
R7	12K			
R8	4700Ω			
R9	4700Ω			
R10	220K			
R11	2200Ω			
R12	15K			
R13	4700Ω			
R14	150Ω			
R15	47Ω			
R16	470Ω			
R17	180Ω			
R18	68000Ω			
R19	1Meg			
R20	1.5Meg			
R21	1Meg			
R22	4700Ω	2		
R23	33K	2		
R24	3300Ω			
R25	100K			
R26	56K			
R27	56K	1		
R28	270K			
R29	560K			
R30	470Ω			
R31	820Ω			
R32	220Ω			
R33	390K			
R34	22K			
R35	560K			
R36	4700Ω			
R37	4700Ω			

ITEM No	RATING		OLYMPIC PART No	NOTES
	OHMS	WATT		
R38	270K			
R39	1800Ω			
R40	2.2Meg			
R41	820Ω	1		
R42	680Ω			
R43	680Ω			
R44	22K			
R45	120K			
R46	100K			
R47	56K 5%			
R48	10K			
R49	47K			
R50	180K			
R51	47Ω			
R52	120K			
R53	8200Ω	2		
R54	56K 5%			
R55	470K			
R56	2700Ω	2		
R57	5600Ω			
R58	150K	1		
R59	150K	1		
R60	150K	1		
R61	2.2Ω			
R62	2700Ω	10		Note 1
R63	27Ω	10	R-2125	
R64	27Ω	10	R-2125	
R65	27Ω	10	R-2125	
R66	220K			
R67	5.5Ω	5	R-1409	

Note 1 UHF models use 2100Ω, 10W in this application

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA						NOTES
		OLYMPIC PART No	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	Vert. Oscillator	R-2081	B6702 ①	A-3003 ①	V405 ①	A-8125 ①	26A03 ①	A-97Z	
T2	Vert. Output	R-2088	21808 ①	A-3039 ①	V312 ①	A-8141 ①	26854 ①	A-104X ①	
T3	Horiz -Horiz.(3Q 5MHz) & (90°) -Vert. (42MHz)	R-2080	DF607 ② ③	MDF72 ③ ④	Y90V19/43 ③ ④	Y-18 ② ③		Y-46 & NW19 ③	
T4	Horiz. Output	R-2057-1	FB446 * ⑤	HVC-56 * ⑤	X126 * ⑤	HO-250 * ⑤	FLY-80 * ⑤	D-83 * ⑤	
	Alt. Horiz. Output	R-2057							

① Drill new mounting hole(s).
② Use original yoke damping network.
③ Connect same as original.
④ Use original mounting screws and trim terminal board to duplicated original.
⑤ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	8	8	8	8	8	8
	7	3	6	6	3	6	3
	9	NC See Note ③	NC See Note ③	NC See Note ⑤	NC See Note ⑤	NC See Note ⑤	NC See Note ⑤
	5	NC See Note ③	NC See Note ③	NC See Note ⑤	NC See Note ⑤	NC See Note ⑤	NC See Note ⑤
	2	2	2	2	2	2	2
Special Notes →		5-8	5-8	5-8	5-8	5-8	5-8

① To provide horizontal yoke damping, connect approx. 50-100MMF ② 2KV series with resistor (RST) across horizontal yoke terminals #3 and #7.
③ Remove capacitor (C85) from circuit, and to insure sufficient width, connect approx. 100MMF
④ 4KV across horizontal yoke terminals #3 and #1.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI	SEC	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	16K	3-4Ω	R-2059 ①	22118	A-3834	A-3881	34254	S-51X	① Alternate part #TR5620

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C IMP	OLYMPIC PART No.	QUAM PART No	
SP1	4"	PM	3-4Ω	R-2366	4A07	① Alternate part number.
	4"	PM	3-4Ω	SK4342 ①	4A07	

COILS (RF-IF)

ITEM No	USE	OLYMPIC PART No.	NOTES
L1	Ant. Trans.	2309-1	

ITEM No.	USE	OLYMPIC PART No	NOTES
L3	Mixer Plate Coil	2110-9	

ITEM No.	USE	REPLACEMENT DATA				NOTES
		OLYMPIC PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No	
L3	1st. Video IF	R-2062	17-4534	TV-131		
L4	RF Choke	R-1431	19-5022 ▲			35 Microhenries, wound on 4700Ω resistor
L5	RF Choke	R-2065	19-1001	BC-562	4804	1.4 Microhenries
L6	2nd. Video IF	R-2064	17-4534	TV-130	6334	Note 1
L7	3rd. Video IF	R-2055	17-4534	TV-130	6319	Note 1
L8	Series Peaking Coil	R-1470	19-3093	TV-130	6177	85 Microhenries
L9	Series Peaking Coil	R-1950	TV-190 ▲	6133 ▲		355 Microhenries, wound on 12K resistor
L10	4.5MC Trap	N-9011	20-1004 ■	TV-151	1470 ■	
L11	Shunt Peaking Coil	R-1949	19-5100 ▲			114 Microhenries, wound on 4700Ω resistor
L12	1st. Sound IF	R-1835	17-3400	TV-151	1469 ■	
L13	2nd. Sound IF	R-2160				
L14	Quadrature Coil	R-2159	20-1005	TV-131	1480	

▲ Parallel with 4700Ω resistor
• Parallel with 12K resistor
■ Disregard tap.
Note 1. Alternate part #R2062 may be used in some versions.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLYMPIC PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No	
L15	7Ω *		R-1406		TV-165			HS-7	Horiz. Freq. 10 - 67.5 Millihenries
L16	40Ω		R-1405		TV-166 ▲			HS-8	Horiz. Waveform 6 - 13.5 Millihenries

* Tapped @ 50Ω. ▲ Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 $\sim_{A}$	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L17	.180A	54Ω	.6 HY.	R-2068 CK4047 ①	C5030 ②		C-2237 C-2235 ②	28C43 ②	C-34X C-34X

① Alternate part number.
② Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No	REPLACEMENT DATA	
K1	Antenna Isolation	470MMF, .3-1Meg	R-2779	Centralab	RC-471
K2	Antenna Isolation	470MMF, .3-1Meg	R-2779	Centralab	RC-471
K3	Sync Coupler	270MMF, 10000MMF, 25MMF, 2.2Meg, 330K, 10K	R-1459	Centralab Sprague	PC280 ST-1
K4	Vert. Integrator	4700MMF, 4700MMF, 22K, 10K	R-1458	Aerovox Centralab Sprague	PA-383-2 PC106 V-5

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	OLYMPIC PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No	
M1	.180A	R-2147 ① ③	1236A ①	1N6007 ②	MR300 ①	300 ①	① Selenium type.
M2	.180A	R-2147 ① ③	1236A ①	1N6007 ②	MR300 ①	300 ①	② Germanium type. ③ Alternate part #RF3816

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		OLYMPIC PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *	1N60 *	1N60	1N60	Video Detector (Pigtail)
M4	1N60	1N60	1N60	1N60	Horiz. AFC (Pigtail)

* A 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M5	Tuner	R-2019	VHF
	Tuner	R-2758	UHF, VHF
M6	Centering Device	R-2043	Includes yoke cover
M7	Ion Trap	R-2044	

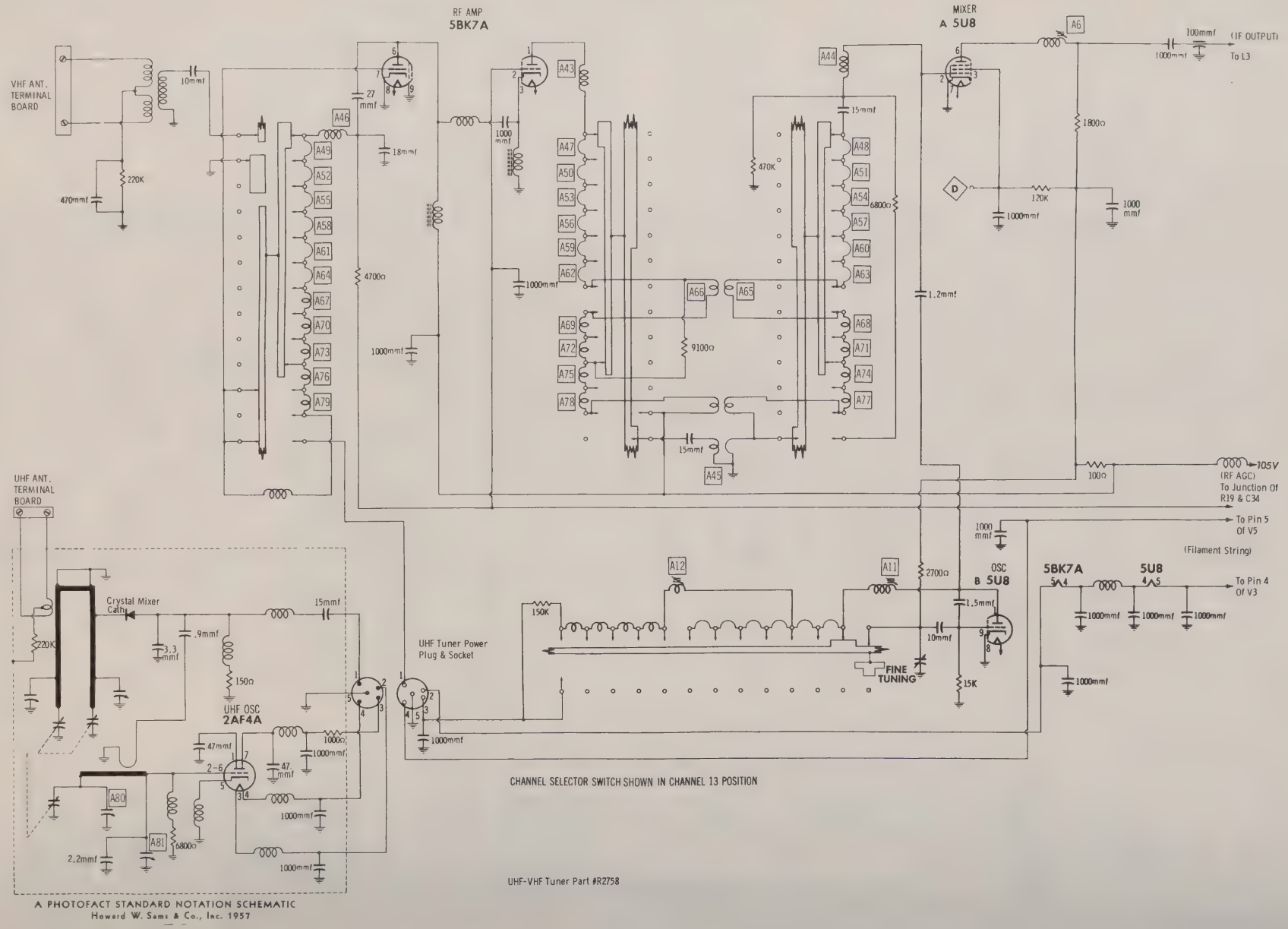
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO	DESCRIPTION
Safety Glass	R-2070	
Knob	R-2466	VHF Channel Selector - VHF Models
Knob	R-2813	VHF Channel Selector - UHF Models
Knob	R-2471	Fine Tuning - VHF Models
Knob	R-2811	VHF Fine Tuning - UHF Models
Knob	R-2791	UHF Fine Tuning
Knob	R-2813	UHF Dial
Knob	R-2813	UHF Dial Background
Knob	R-2472	On-off-volume
Knob	R-2473	Contrast

OLYMPIC MODELS 171Z90C, CU

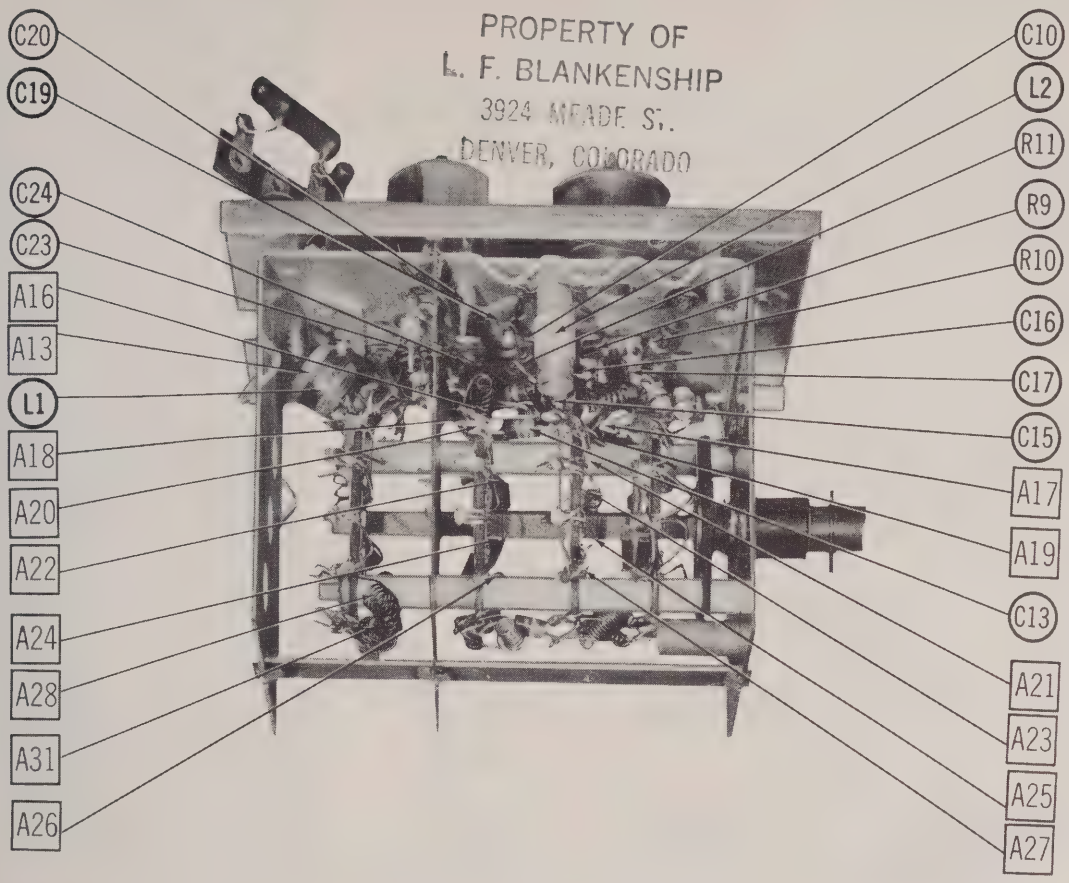
FOLDER 4



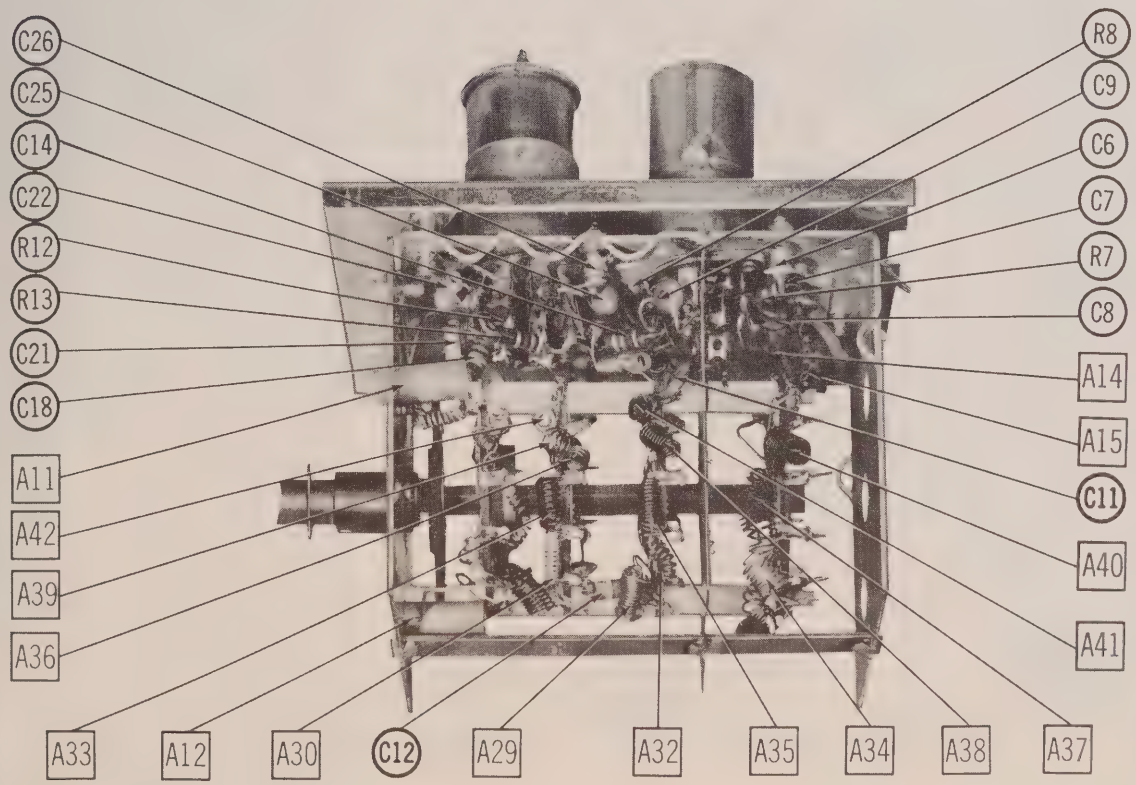
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

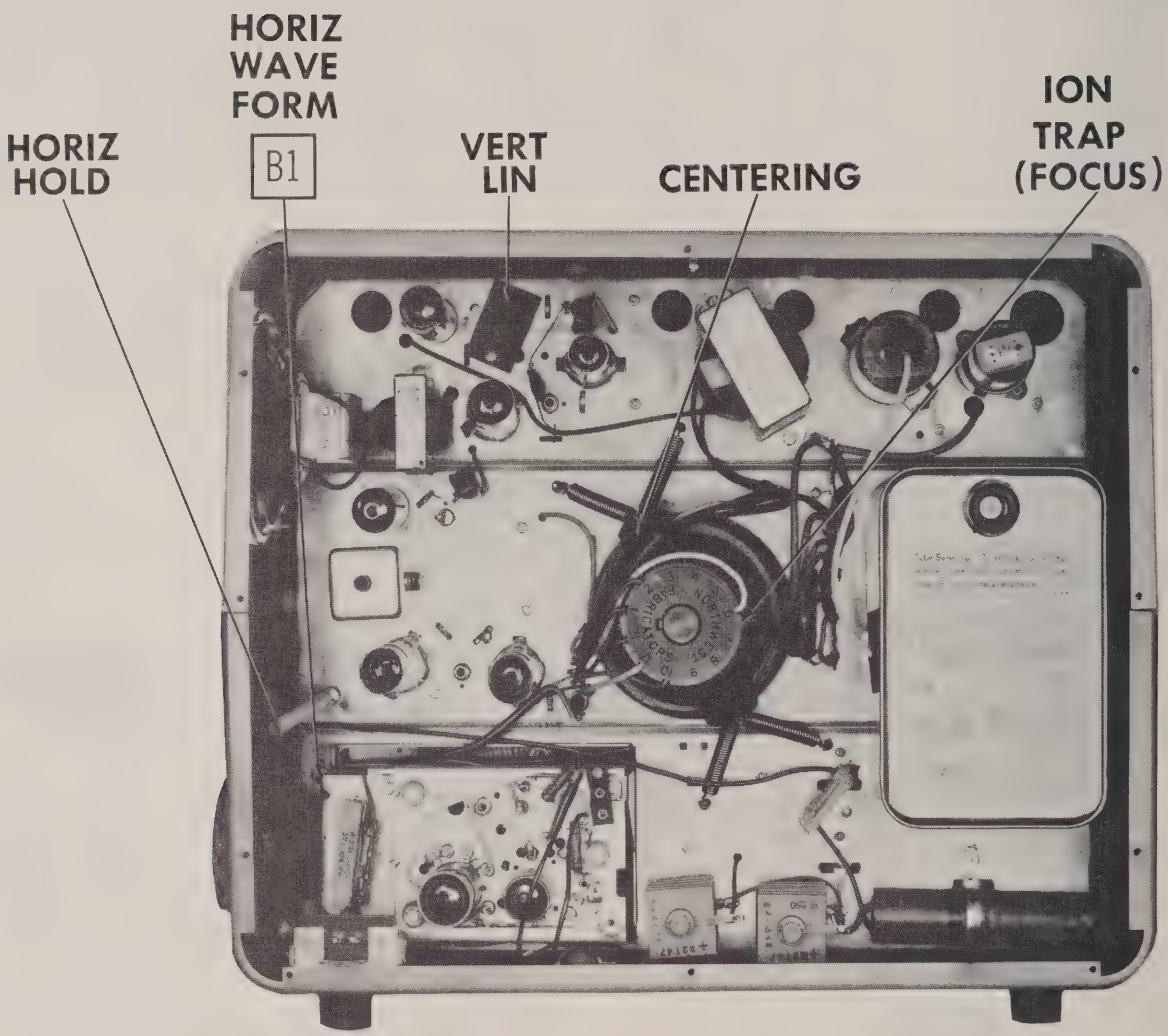


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

FOLDER 4



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the contrast control for normal picture.

Adjust the horizontal hold until the picture synchronizes horizontally.

Connect the vertical amplifier of the scope thru a 10MMF capacitor to point ◇E◇ . Low side to chassis. Adjust the horizontal waveform slug (B1) until a waveform similar to Fig. 4 is obtained. While making this adjustment, keep the picture in sync with the horizontal hold.

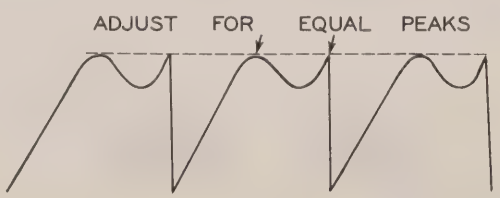
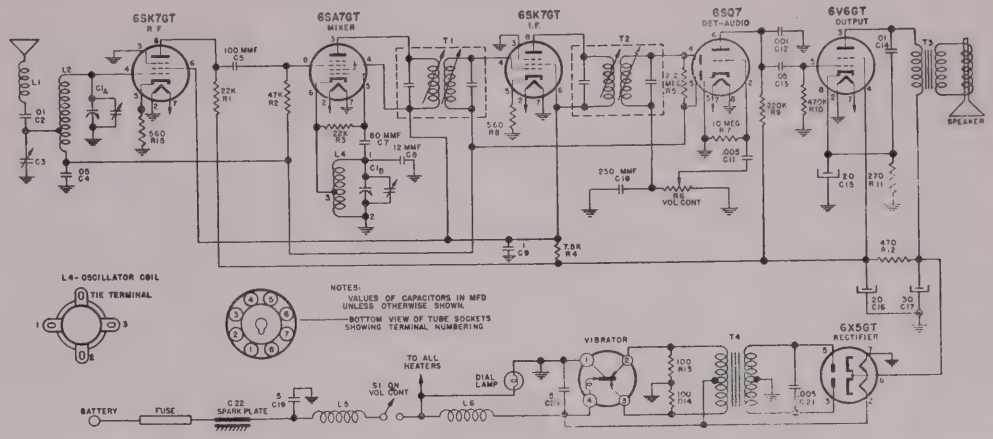
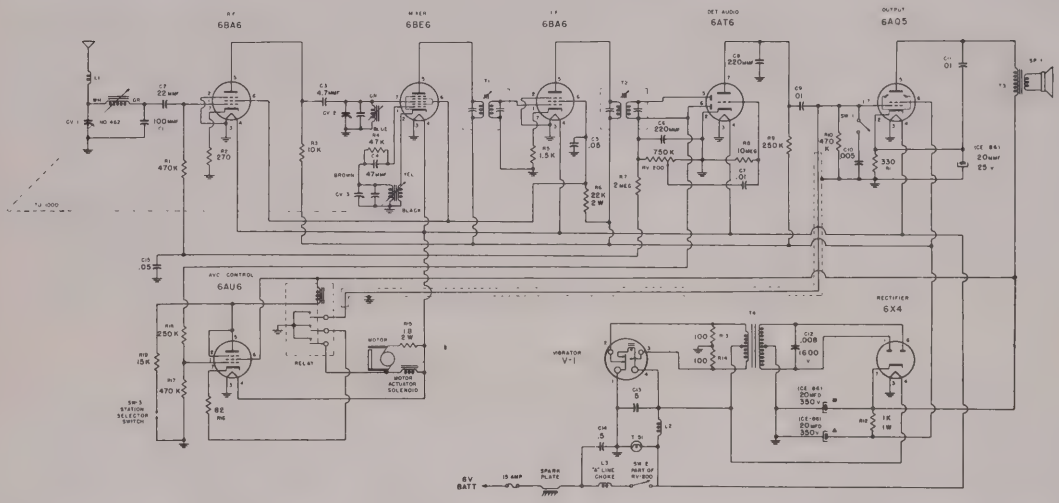


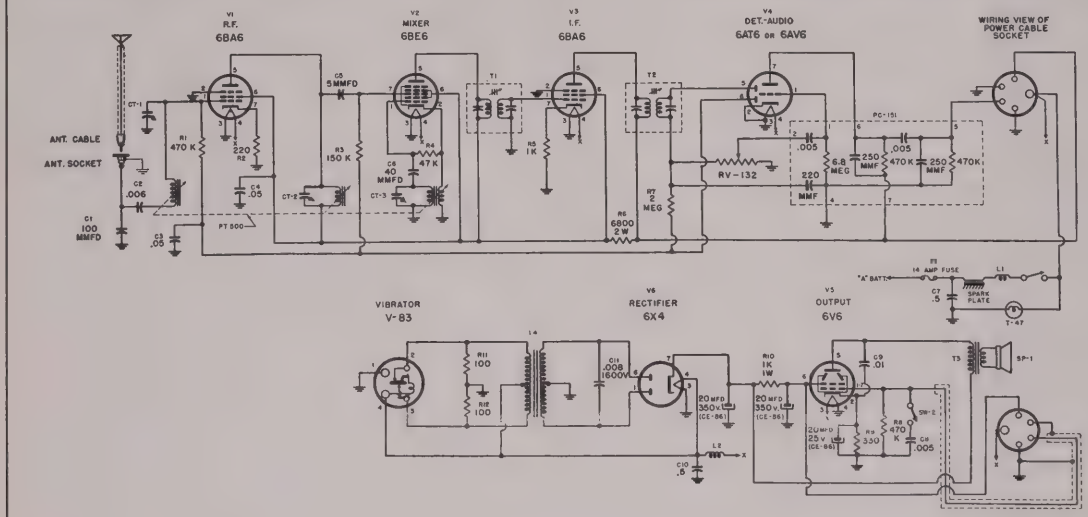
FIG. 4



AIRCASTLE MODEL 602-170144 — Schematic Diagram Courtesy of Spiegel, Inc.



AIRCASTLE MODEL 610. CE-352 — Schematic Diagram Courtesy of Spiegel, Inc.



(NOTE: 6AT6 Tube used in place of 6AV6 on some models.)

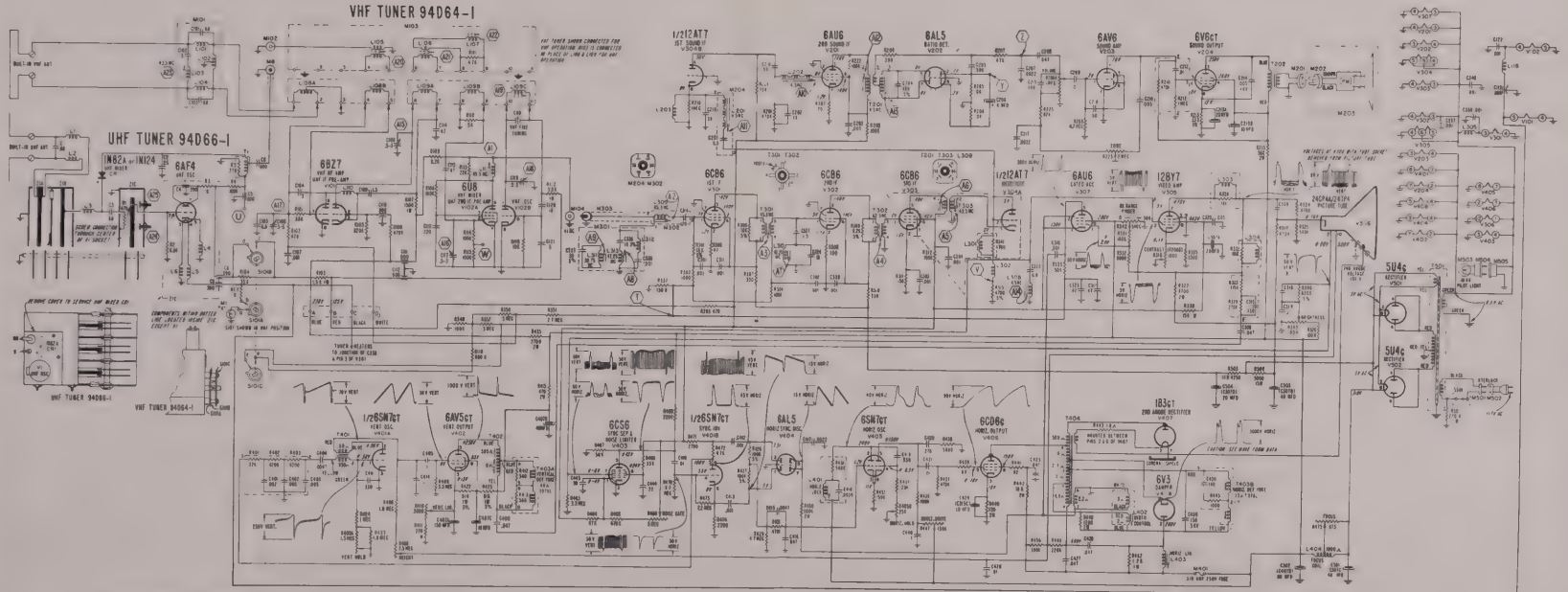
AIRCASTLE MODEL 610. PM-236 — Schematic Diagram Courtesy of Spiegel, Inc.

The PHOTOFACT Servicer

Set 381
Vol. 39

★ Published for all users of Howard W. Sams' Photofact Folders ★

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.



ADMIRAL CHASSIS 23H1Z

Schematic Diagram Courtesy of Admiral Corp.

PHOTOFACT* Folder

*TRADE MARK

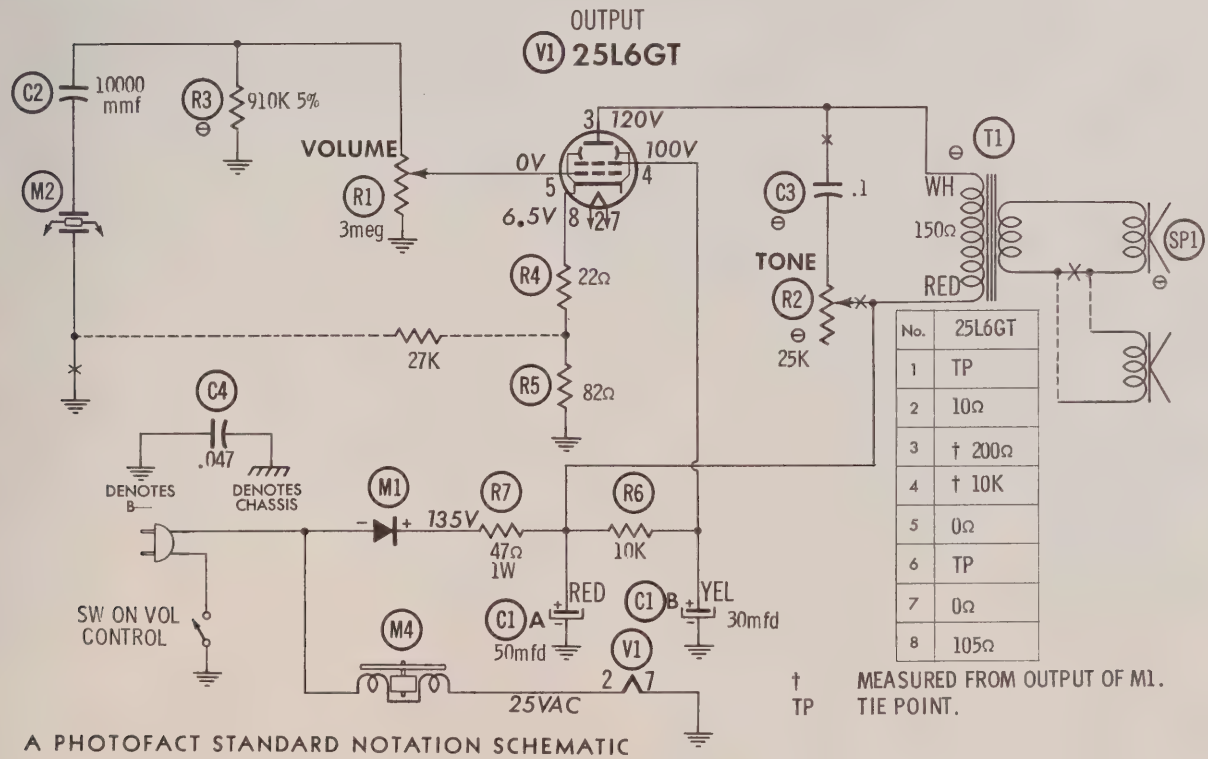
RETMA MEMBER

ADMIRAL
MODELS 1B11, 1C12, 1C14, 1D11, 1D12, 1E13, 1E14 (Ch. 1B1, 1C1, 1D1)

ADMIRAL
MODELS 1B11, 1C12, 1C14, 1D11, 1D12, 1E13, 1E14 (Ch. 1B1, 1C1, 1D1)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	Admiral Models 1B11 (Ch. 1B1), 1C12, 1C14 (Ch. 1C1) 3 Speed Phono; 1D11, 1D12, 1E13, 1E14 (Ch. 1D1) 4 Speed Phono
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	AC Operated Phono Amplifier With Manual Record Player
TUBES (One)	Types 25L6GT Output
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .38 Amp. @ 117 Volts AC (30 Watts With Motor)



No.	25L6GT
1	TP
2	10Ω
3	† 200Ω
4	† 10K
5	0Ω
6	TP
7	0Ω
8	105Ω

† MEASURED FROM OUTPUT OF M1.
TP TIE POINT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ADMIRAL
MODELS 1B11, 1C12, 1C14, 1D11, 1D12, 1E13, 1E14 (Ch. 1B1, 1C1, 1D1)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H200

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

FOLDER 5

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25L6GT	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	67B26-3	PRS150V3050	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000		65D10-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C3	.1	400	64B1-20	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C4	.047	400	64B1-30	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	Note 1.

Note 1. Not used in chassis 1B1.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	3Meg	½	75C1-79	B-85	A47-3Meg-Z	Q13-140	U57	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	25K	½	75C1-80	B-26	A47-25K-S	Q11-120	U29	Tone Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Not Used In Chassis 1B1.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R3	910K 5%			Note 1
R4	22Ω		60B8-220	
R5	82Ω		60B8-820	

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R6	10K	1	60B8-103	
R7	47Ω		60B14-470	

Note 1. Some versions use 1 Meg (Part #60B8-105).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2000Ω	3-4Ω	Part of Spkr.	Z1101	A-3025	A-3332	26S58	S-12X	

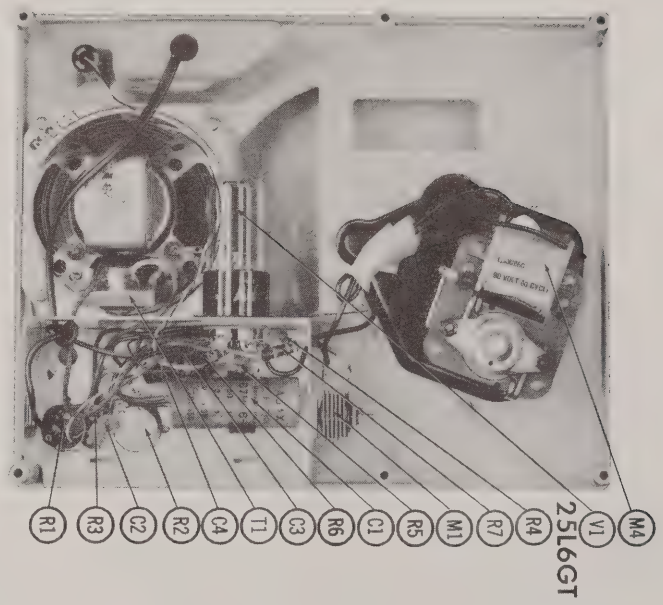
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	78B123-1 ① 78B123-2 ② 78B123-3 ③	4A07	① Includes T1. Used in Models 1B11, 1C12, 1C14, 1D11, 1D12 ② Used in Models 1E13, 1E14 ③ Includes T1. Used in Models 1E13, 1E14

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	ADMIRAL PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.056A	93B1-4	1003A	RS075	75	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	409B22 ① 409B22-2 ② 409B22-3 ③	310-TB-TS B-310-T④	N8-1 N8-3			① Used in Model 1B11. ② Used in Models 1C12, 1C14 ③ Used in Models 1D11, 1D12, 1E13, 1E14 ④ Tone Arm Complete With Cartridge

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	ADMIRAL PART No.	JENSEN PART No.	WALCO PART No.	
M3	* 98C15-64 ① *† 98C15-65 ② † 98C15-66 ③	* JP-35 or † JPS-35 or †♦ JPS-35SD or ♦ JPS-35D	* W-35TPA or † W-35TPS or †♦ W-35DS or ♦ W-35TPD	* Metal † Jewel ♦ Diamond ① Used in Model 1B11 ② Used in Models 1C12, 1C14 ③ Used in Models 1D11, 1D12, 1E13, 1E14

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Motor	407C25	3 Speed, Models 1B11, 1C12, 1C14
	Motor	407C25-2	4 Speed, Models 1D11, 1D12, 1E13, 1E14

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

DAVID BOGEN
MODEL PR100A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

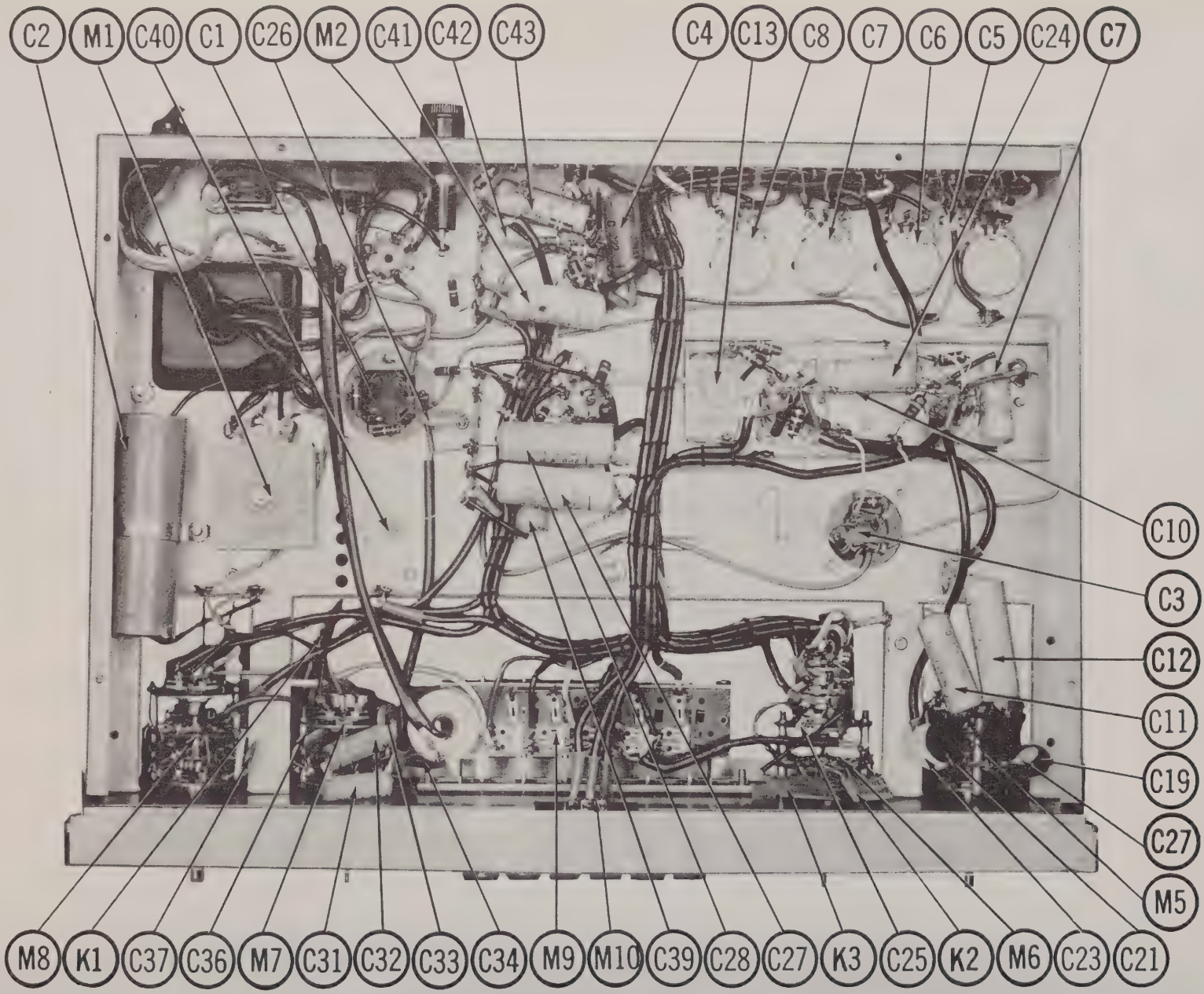
DAVID BOGEN
MODEL PR100A

DAVID BOGEN
MODEL PR100A

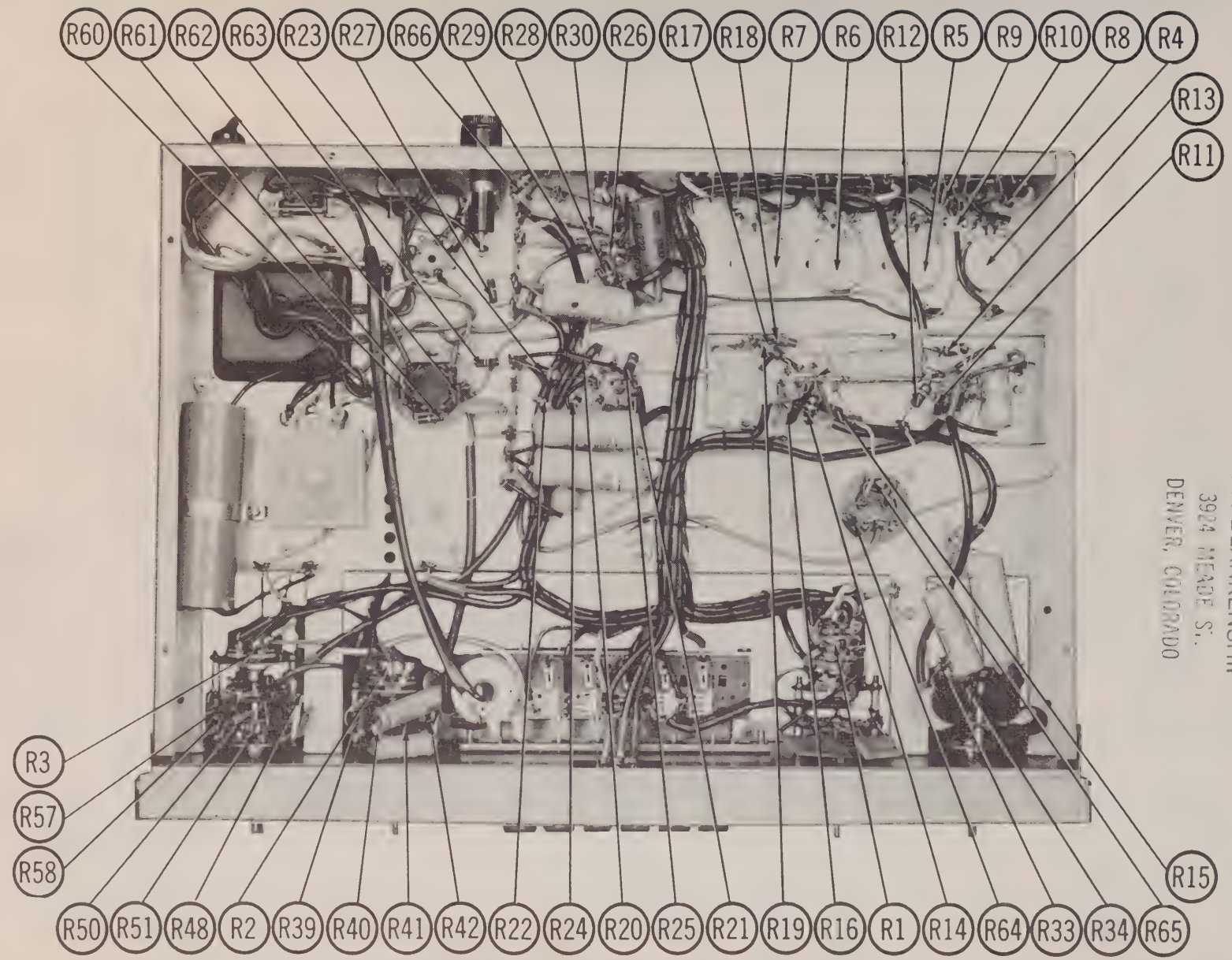
TRADE NAME	David Bogen Model PR100A		
MANUFACTURER	David Bogen Co., Inc., P. O. Box 500, Paramus, N. J.		
TYPE SET	AC Operated 8 Channel Equalizer Preamplifier		
TUBES (Five)	Types 12AU7/ECC82 Phono Preamplifier, 12AX7/ECC83 Phono AF Amplifier, 12AT7/ECC81 AF Amplifier, 12AU7/ECC82 AF Amp. - Cath. Follower, 6X4 Rectifier		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.23 Amp. @ 117 Volts AC (23 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



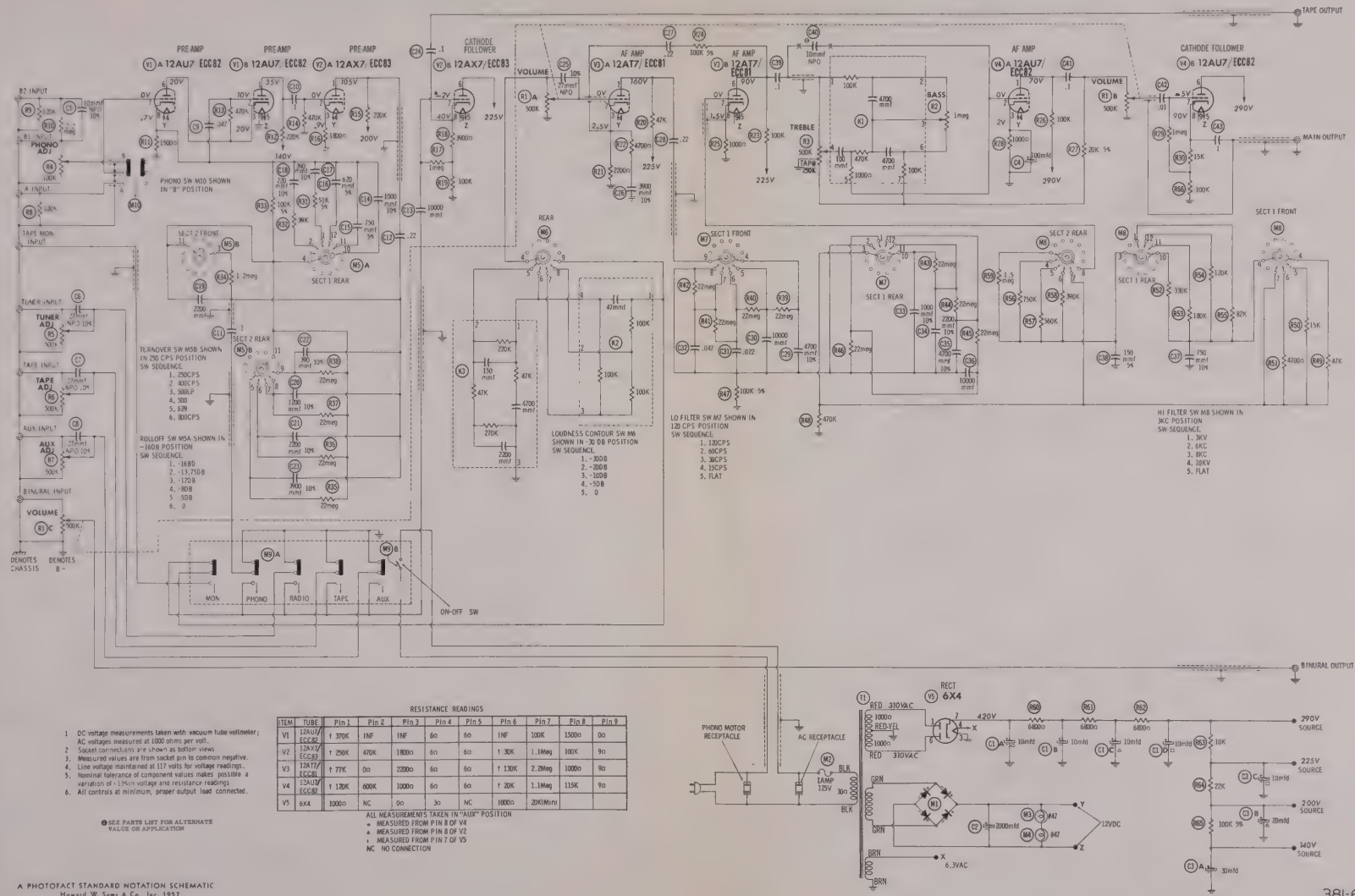
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

DAVID BOGEN
MODEL PR100A



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7/ECC82	↑ 370K	INF	INF	6Ω	6Ω	INF	100K	1500Ω	0Ω
V2	12AX7/ECC83	↑ 250K	470K	1800Ω	6Ω	6Ω	↑ 30K	1.1Meg	100K	9Ω
V3	12AT7/ECC81	↑ 77K	0Ω	2200Ω	6Ω	6Ω	↑ 130K	2.2Meg	1000Ω	9Ω
V4	12AU7/ECC82	↑ 120K	600K	1000Ω	6Ω	6Ω	↑ 20K	1.1Meg	115K	9Ω
V5	6X4	1000Ω	NC	0Ω	3Ω	NC	1000Ω	20KMinn		

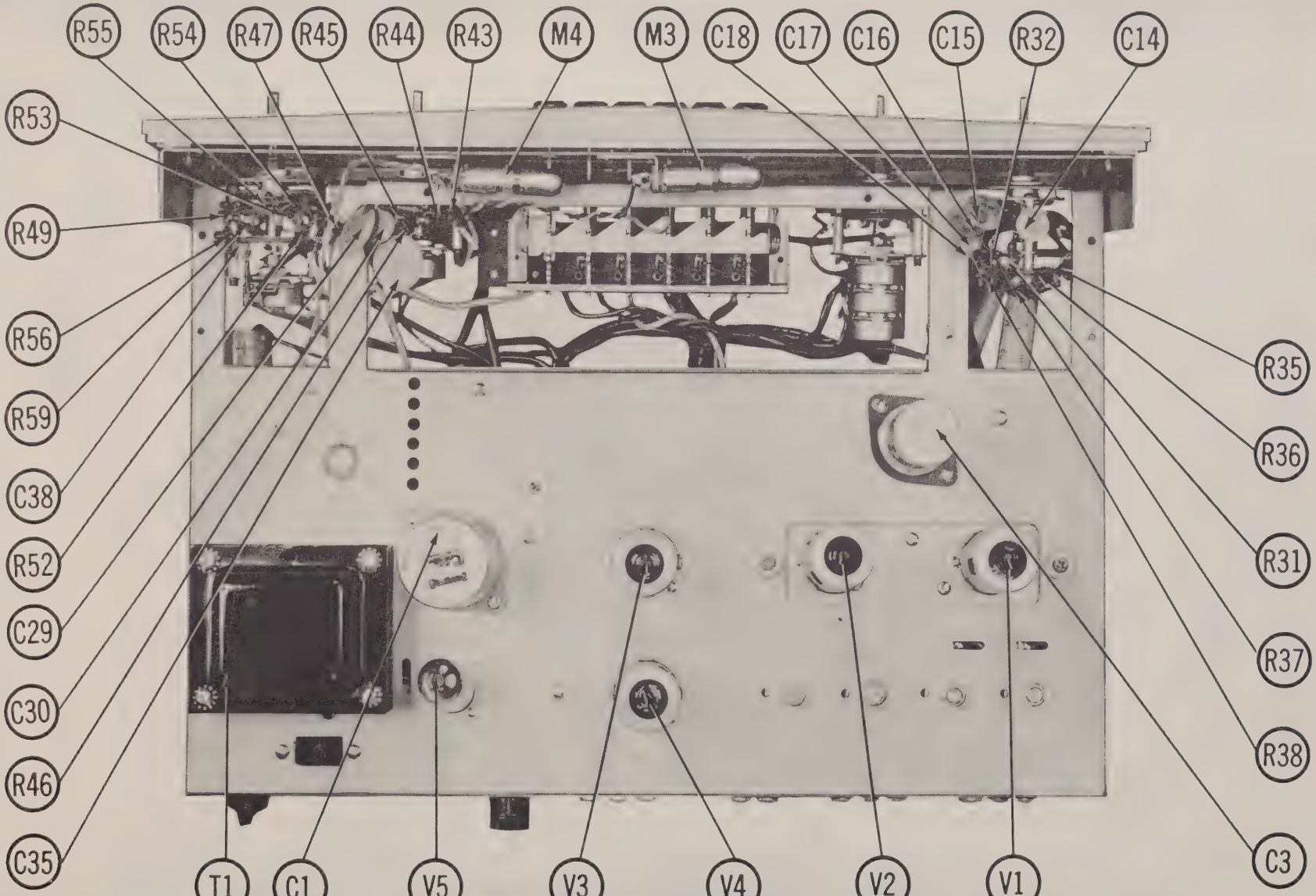
ALL MEASUREMENTS TAKEN IN "AUX" POSITION
* MEASURED FROM PIN 8 OF V4
▲ MEASURED FROM PIN 8 OF V2
↓ MEASURED FROM PIN 7 OF V5
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

381-6



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Phono Preamplifier	12AU7/ECC82
V2	Phono AF Amplifier	12AX7/ECC83
V3	AF Amplifier	12AT7/ECC81
V4	AF Amp. -Cath. Follower	12AU7/ECC82
V5	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲10	450		AFH4-10	D0090	FP434	TMQ-10	Q-030	TVL-4760
B	10	450							
C	▲10	450							
D	■10	450							
C2	2000	15		AFH1-03	BR20001	TC1501 TC1501	TD-1000-15 TD-1000-15	S-025	R2425 *
C3A	30	150		AFH3-17		FP330.3 TC47		D335 MT-1530	TVL-3537
B	▲20	200							
C	■10	250							
C4	100	6		PRS6V100	BBR100-6	TC2501	TD-100-6	MTH-0610	TVA-1101

* NON CATALOG ITEM

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	10			NP0-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	NP0 10%
C6	27				TCZ-27	C10Q27C	TCO-27			NP0 10%
C7	27				TCZ-27	C10Q27C	TCO-27			NP0 10%
C8	27				TCZ-27	C10Q27C	TCO-27			NP0 10%
C9	.047	200		P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C10	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C11	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C12	.22	200		P288N-22		CUB2P22		CUB2P22	2TM-P22	
C13	10000			BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C14	1000						ED-1000			10%
C15	750									5%
C16	620									5%
C17	390				D6-391	L10T39	ED-390			10%
C18	220				D6-221	L10T22	ED-220			10%
C19	2200			BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C20	1200						ED-1200			10%
C21	2200									10%
C22	390				D6-391	L10T39	ED-390			10%
C23	3900									10%
C24	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C25	27				TCZ-27	C10Q27C	TCO-27			NP0 10%
C26	3900									10%
C27	.22	200		P288N-22		CUB2P22		GEM-2022	2TM-P22	
C28	.22	200		P288N-22		CUB2P22		GEM-2022	2TM-P22	
C29	4700									10%
C30	10000			BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C31	.022	200		P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C32	.047	200		P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C33	1000						ED-1000			10%
C34	2200									10%
C35	4700									10%
C36	10000			BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C37	750						ED-750			10%
C38	150			NP0-SI 150	TCZ-150		TCO-150	ZT-5315	5TCC-T15	5%
C39	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C40	10			NP0-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	① NP0
C41	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C42	.01	200		P288N-01	DD-103	CUB4SI	GP-10000	GEM-411	4TM-SI	
C43	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	

① Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA David Bogen PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	S452B			Q13-133		Volume
B	500K	½				M13-133		Volume
C	500K	½				M13-133		Volume
R2A	1Meg	½		B-69	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FKS ½	Not Req.	Not Req.	
R3A	500K	½		BT-65	A47F5-500K	Q19-133X	UT-431	Treble, Tap ⓐ 250K
B	Shaft			Not Req.	FKS ½	Not Req.	Not Req.	
R4A	100K	½	V391	AB-40	A47-100K-S	Q11-128	U41	Phono Adjust.
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R5A	500K	½	V275B	AB-60	A47-500K-Z	Q13-133	U48	Tuner Adjust.
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R6A	500K	½	V275B	AB-60	A47-500K-Z	Q13-133	U48	Tape Adjust.
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R7A	500K	½	V275B	AB-60	A47-500K-Z	Q13-133	U48	Aux Adjust.
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	NOTES
R8	100K			
R9	120K			
R10	2.2Meg			
R11	1500Ω			
R12	220K			
R13	470K			
R14	470K			
R15	220K			
R16	1800Ω			
R17	1Meg			
R18	3900Ω			
R19	100K			
R20	47K			
R21	2200Ω			
R22	4700Ω			
R23	100K			
R24	100K 5%			
R25	1000Ω			
R26	100K			
R27	20K 5%			
R28	1000Ω			
R29	1Meg			
R30	15K			
R31	51K 5%			
R32	39K			
R33	100K 5%			
R34	1.2Meg			
R35	22Meg			
R36	22Meg			
R37	22Meg			

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	NOTES
R38	22Meg			
R39	22Meg			
R40	22Meg			
R41	22Meg			
R42	22Meg			
R43	22Meg			
R44	22Meg			
R45	22Meg			
R46	22Meg			
R47	100K 5%			
R48	470K			
R49	47K			
R50	15K			
R51	4700Ω			
R52	330K			
R53	180K			
R54	120K			
R55	82K			
R56	750K			
R57	560K			
R58	390K			
R59	1.5Meg			
R60	6800Ω			
R61	6800Ω			
R62	6800Ω			
R63	10K			
R64	22K			
R65	100K 5%			
R66	100K			

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA David Bogen PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .23A	640VCT ⓐ .008A	6.3VAC ⓐ .6A	12VAC ⓐ .135A	T3133-1					

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	David Bogen PART No.	REPLACEMENT DATA
K1	Tone Compensation	4700MMF, 4700MMF, 100MMF 100K, 470K, 1000Ω, 100K	C392	Centralab PC190
K2	Tone Compensation	47MMF, 100K, 100K, 100K	C419	Sprague 104C-11
K3	Tone Compensation	150MMF, 4700MMF, 2200MMF 47K, 47K, 270K, 220K	C420	Sprague 102C-22

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	David Bogen PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.720A	H-432	1017	C1B	604B	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			David Bogen PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1A 125V Slo-Blo			31300L (3AG 1A 125V S/B)	342001	MDL1	HKP

MISCELLANEOUS

ITEM No.	PART NAME	David Bogen PART No.	NOTES
M3	Pilot Lamp		#47
M4	Pilot Lamp		#47
M5A	Switch	S422A	Rolloff (Rotary Wafer Type)
B	Switch		Turnover (Rotary Wafer Type)
M6	Switch	S452A	Contour (Rotary Wafer Type)
M7	Switch	S424C	Lo Filter (Rotary Wafer Type)
M8	Switch	S425C	Hi Filter (Rotary Wafer Type)
M9A	Switch	S426E	Input Selector Assy (Pushbutton Slide Type)
B	Switch		On-Off (Pushbutton Slide Type)
M10	Switch	S476	Phono (A & B) (Slide Type SPST)

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

EMERSON MODELS 833B, 840A, 848B, 878B, 879B (Ch. 120267B)

EMERSON MODELS 833B, 840A, 848B, 878B, 879B (Ch. 120267B)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

EMERSON MODELS 833B, 840A, 848B, 878B, 879B (Ch. 120267B)

TRADE NAME	Emerson Models 833B, 840A, 848B, 878B, 879B (Ch. 120267B)
MANUFACTURER	Emerson Radio & Phono Corp., 14th & Coles Sts., Jersey City 2, N. J.
TYPE SET	Three Power Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	105-125 Volts AC-DC (or) 7.5 Volts "A" Supply & 67.5 Volts "B" Supply
RATING	.15 Amp. @ 117 Volts AC (or) 60MA @ 7.5 Volts DC & 9.7MA @ 67.5 Volts DC (10 Watts)
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A5	"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H109

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

EMERSON
MODEL 833B (Ch. 120267B)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det. - AVC - AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	925327	PRS150/10V	BBRT4415X25	WT2015			R1392 *
B	40	150		4040/250					
C	250	10							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400	920554	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C3	10000		928742	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C4	2.2		915005	NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C5	10000		928742	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	2200		928662	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C7	.047	400	922554	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C8	.1	400	920556	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C9	.047	400	920555	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C10	.047	400	920555	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	390344					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

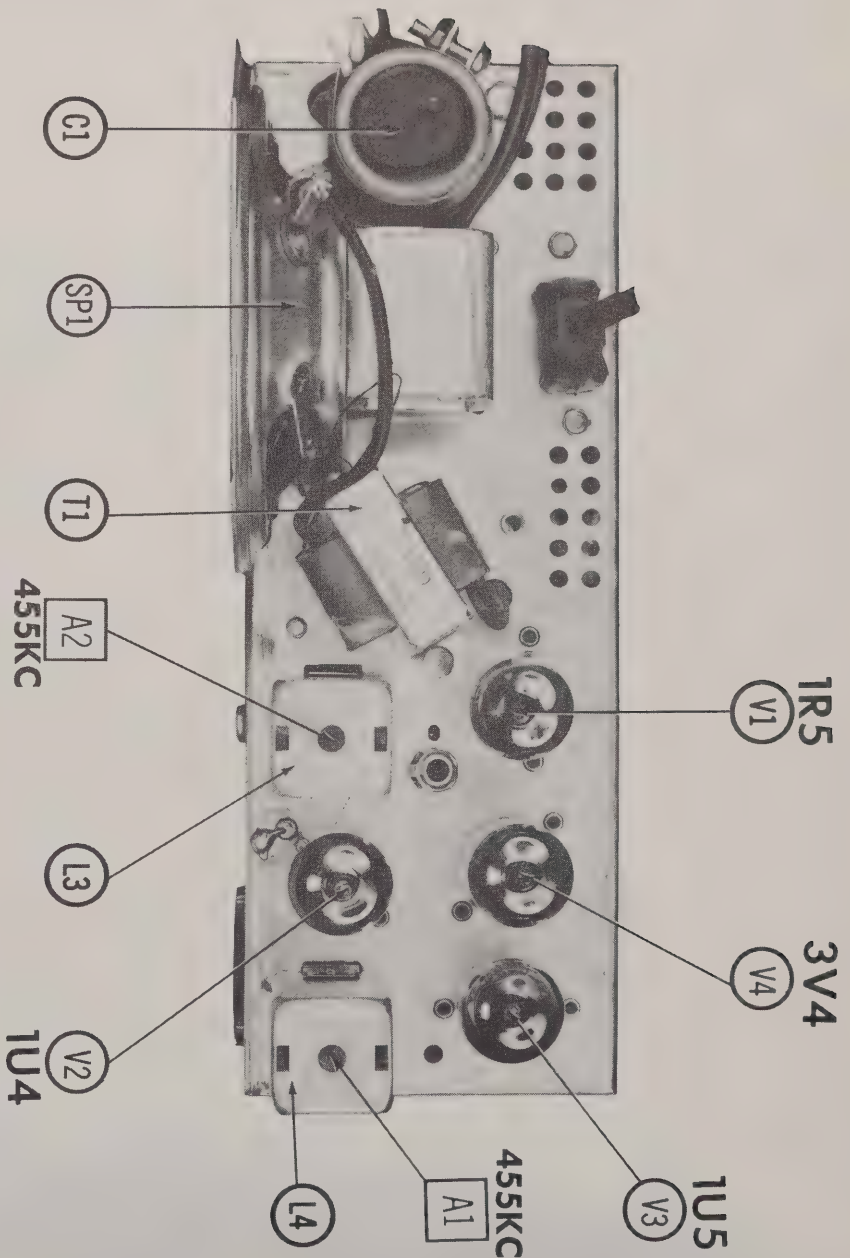
ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R2	100K		350972	
R3	15K		340772	
R4	3.3Meg		351332	
R5	3.3Meg		351332	
R6	10Meg		351452	
R7	1Meg		341212	
R8	4.7Meg		351372	

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R9	2.2Meg		351292	
R10	22Meg		351532	
R11	2700Ω		340592	
R12	560Ω		340432	
R13	560Ω		340432	
R14	1500Ω		340532	
R15	2200Ω 5%	8	394163	
R16	120Ω 5%		394162	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9400Ω	3-4Ω	734105		A-2927			S-11Z	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	180135	3A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	700107		BC-419		
L2	Osc. Coil	716096	14-1073		69-OSC	
L3	Input IF	720525	16-6758	BC-352	12-C1	
L4	Output IF	720066A	16-6758	BC-353	12-C2	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	EMERSON PART No.	REPLACEMENT DATA
K1	Det. - Audio Coup. Net.	1000MMF, 100MMF, 10000MMF, 200MMF, 1000MMF	928034	Sprague 34C8

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	EMERSON PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.060A	817041	1003A	RS075	75	

BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M2	7.5V	818111	C5		717		M9		9		
M3	67.5V	818010		XX45		467		M200		200	

MISCELLANEOUS

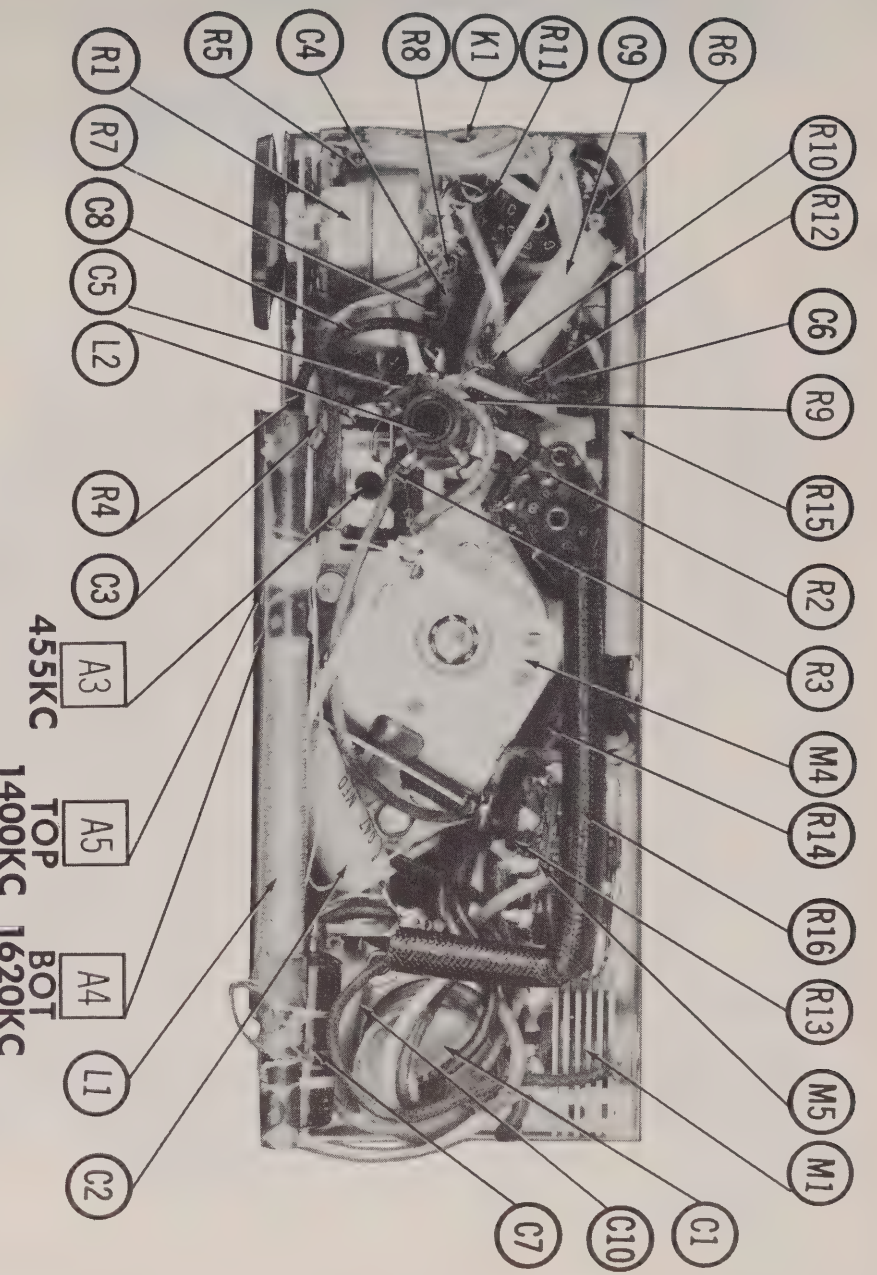
ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4	Tuning Cap.	900126	2 Gang (Ant. 10-215MMF, Osc. 14-125MMF)
M5	Switch	510109	Power Changeover (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	460710	Tuning, Model 833B
Knob	460711	Tuning, Models 840A & 848B
Knob	460900	Tuning, Model 878B
Knob	460901	Tuning, Model 879B
Knob	450237	On-Off-Volume, Model 833B
Knob	460705	On-Off-Volume, Model 840A
Knob	450139	On-Off-Volume, Model 848B
Knob	450257	On-Off-Volume, Models 878B & 879B

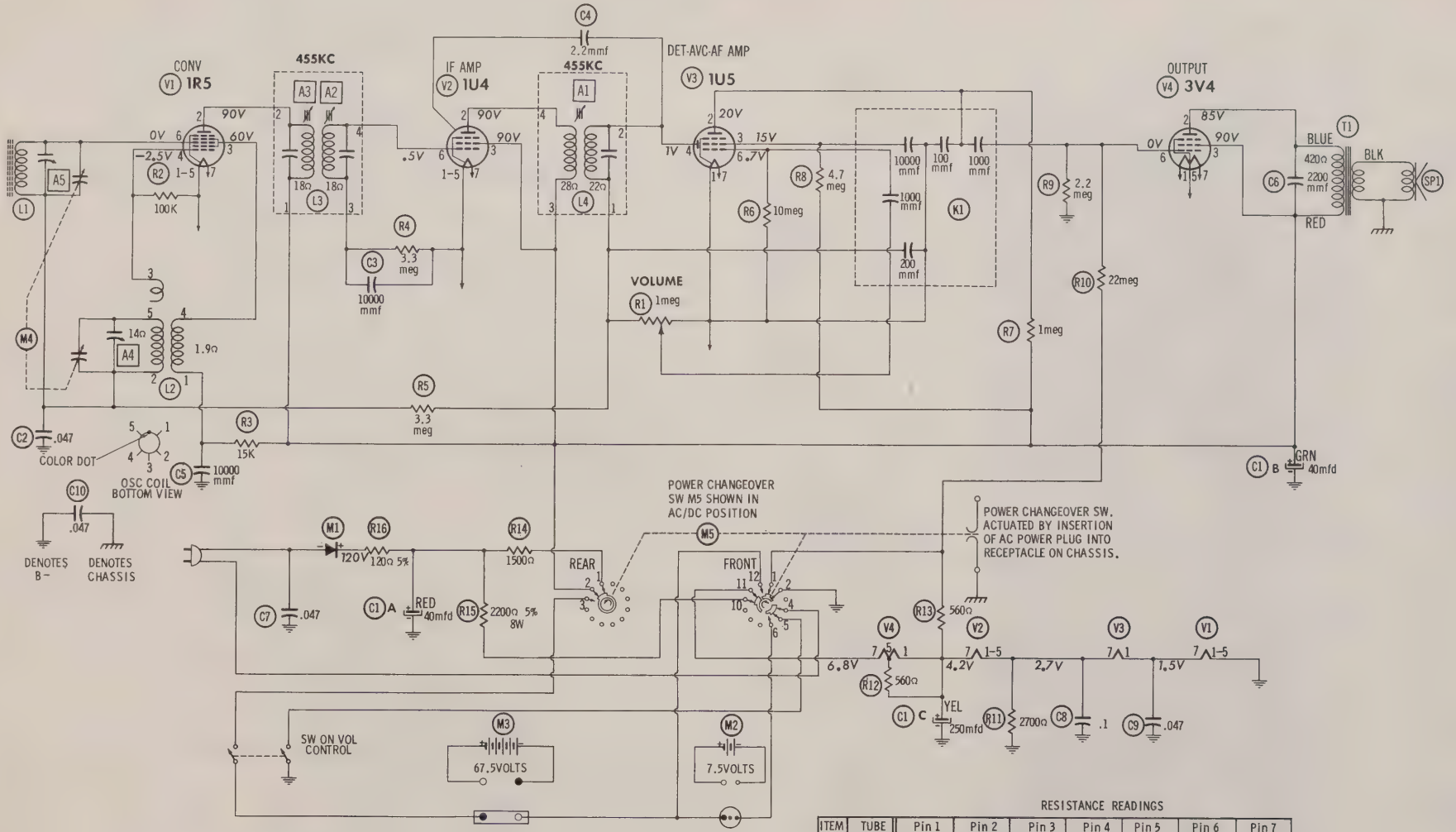
CHASSIS—BOTTOM VIEW



EMERSON
MODEL 833B (Ch. 120267B)

FOLDER 7

EMERSON
MODEL 833B (Ch. 120267B)



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	† 1600Ω	† 16K	100K	•	4.3Meg	•
V2	1U4	•	† 1600Ω	† 1600Ω	TP	•	3.3Meg	•
V3	1U5	•	† 1Meg	† 4.7Meg	1Meg	TP	10Meg	•
V4	3V4	•	† 2000Ω	† 1600Ω	TP	•	2.2Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

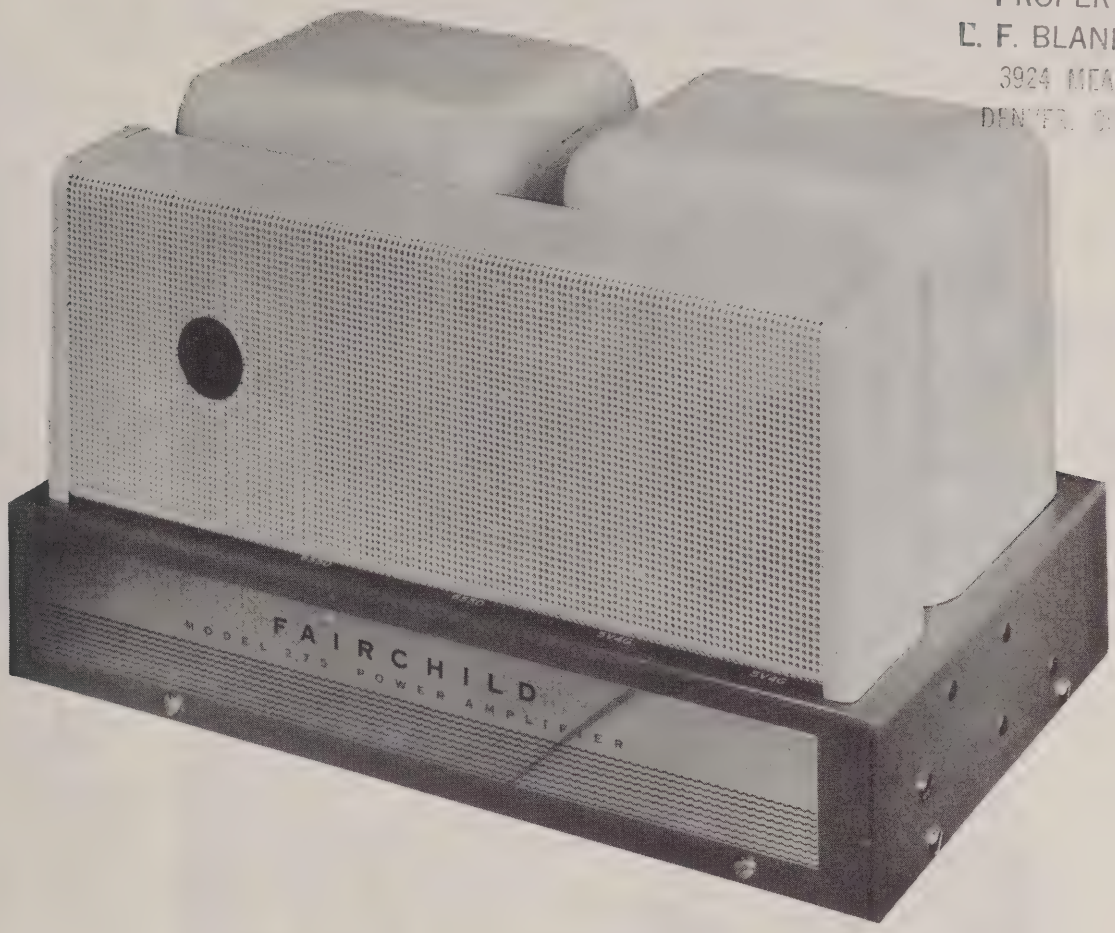
*TRADE MARK

RETMA MEMBER

FAIRCHILD MODEL 275

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

FAIRCHILD MODEL 275



FAIRCHILD MODEL 275

TRADE NAME	Fairchild Model 275
MANUFACTURER	Fairchild Recording Equipment Co., 10-40 45th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated 65 Watt Audio Amplifier
TUBES (Six)	Types 6AB4 AF Amplifier, 12AV7 AF Amp.-Phase Inv., (2) 6550 Output, (2) 5V4G Rectifier
POWER SUPPLY	105-125 Volts AC-50/60 Cycles RATING 1.1 Amp. @ 117 Volts AC (130 Watts)

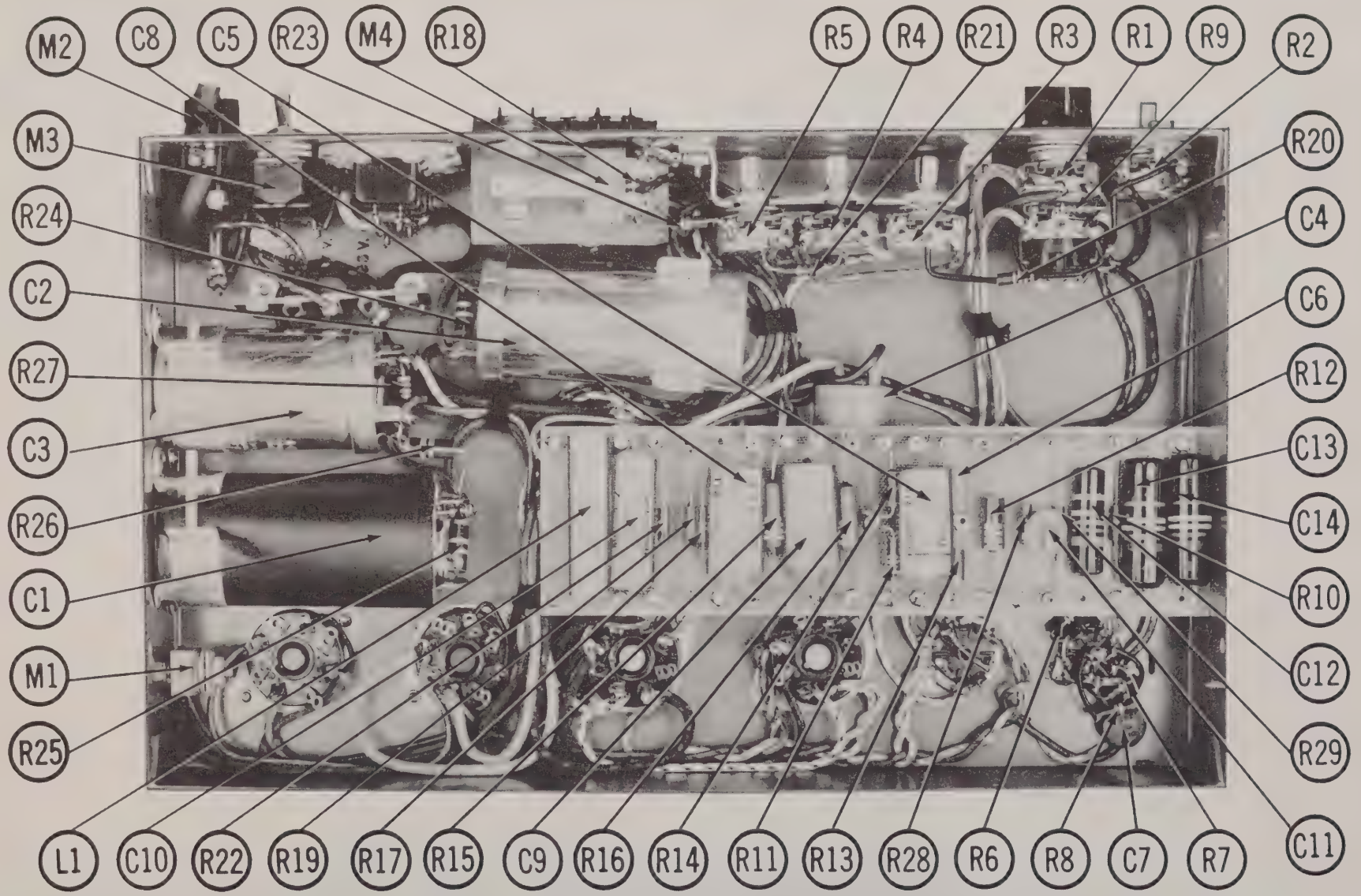
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H193

DATE 12-57 SET 381 FOLDER 8

FOLDER 8



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AB4	
V2	AF Amp. - Phase Inv.	12AV7	
V3	Output	6550	

ITEM No.	USE	TYPE	NOTES
V4	Output	6550	
V5	Rectifier	5V4G	
V6	Rectifier	5V4G	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FAIRCHILD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	140	350	(Note 1)	AFH1-43-20	XA0415	FP247	TMS-62	S-230	TVL-1642
C2	140	350	(Note 2)	AFH1-43-20	XA0415	FP247	TMS-62	S-230	TVL-1642
C3A	▲40	450		AFH2-57	B0450	FP238	TMD-54	D-235	TVL-2764
B	▲40	450							
C4A	20	150		PRS150V2040	BBRD4215	TCD485	TDLD-5	FMD-302	TVA-2438
B	40	150							

Note 1. Some versions may use 90MFD in this application. Note 2. Not used in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FAIRCHILD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	.25	400		P488N-25		CUB4P25		GEM-4025	4TM-P25	
C6	68	1000		HVD-15-68	DD30-680	L10Q68	HD15-68	DC30468	5GA-Q68	①
C7	33			NP0-SI 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	5TCC-Q33	① NP0
C8	.25	600		P688N-25		CUB6P25		GEM-6025	6TM-P25	
C9	.25	600		P688N-25		CUB6P25		GEM-6025	6TM-P25	
C10	.2	400		P488N-22		CUB4P22		GEM-402	4TM-P2	
C11	330	1000		HVD-15-330	DD30-331	L10T33	HD15-331	DC30333	5GA-T33	①
C12	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	①
C13	.012	200		P288N-015	DF-104	CUB4S1	ED-01	GEM-4112	4TM-S1	①
C14	.012	200		P288N-015	DF-104	CUB4S1	ED-01	GEM-4112	4TM-S1	①

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FAIRCHILD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2000Ω	½	A2206					Damping
B	500Ω	½						Damping
C	Switch							Damping
R2A	250K	½	BA211-1760	AB-50	A47-250K-S	Q11-130	U46	Gain
B	Shaft			AK-1	FKS-¼	RQ	Not Req.	
R3A	2.25Meg	½	BA211-1759	AB-83	A47-2.5Meg-S	Q11-239	U255	Current Balance
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R4A	50K	½	BA211-1757	AB-31	A47-50K-S	Q11-123	U35	Grid Balance
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R5A	5000Ω	½	BA211-1758	AB-10	A47-5000-S	Q11-114	U14	Bias Adjust
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		FAIRCHILD PART No.	NOTES
	OHMS	WATT		
R6	150K			Note 1
R7	100K			Note 2
R8	22K			Note 3
R9	1200Ω 5%			
R10	220Ω 5%			
R11	470K			
R12	390K	1		
R13	39K			Note 3
R14	7500Ω 5%			
R15	43K 5%	1		Note 4
R16	43K 5%	1		Note 4
R17	22K 5%			

ITEM No.	RATING		FAIRCHILD PART No.	NOTES
	OHMS	WATT		
R18	3.3Ω	1		
R19	22K 5%			
R20	330K			
R21	8200Ω 5%			
R22	10K			
R23	10K			
R24	100K	1		Note 3
R25	100K	1		Note 3
R26	10K	1		
R27	47K			
R28	47K 5%			
R29	150K			Note 3

Note 1. Some versions may use 18K in this application.
Note 2. Some versions may use 270K in this application.
Note 3. Not used in some versions.
Note 4. R15 and R16 is a matched pair.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	FAIRCHILD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ 1.1A	740VCT @ .010A Tap @ 75V @ .0035A	5VAC @ 4A	6.3VCT @ 4A	021999					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	FAIRCHILD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3600Ω CT	16Ω Tap @ 8Ω, 4Ω	022000						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		FAIRCHILD PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Damping Choke					Note 1

Note 1. .7 Microhenry, wound in series on .33Ω 2W Resistor.

SELENIUM RECTIFIER

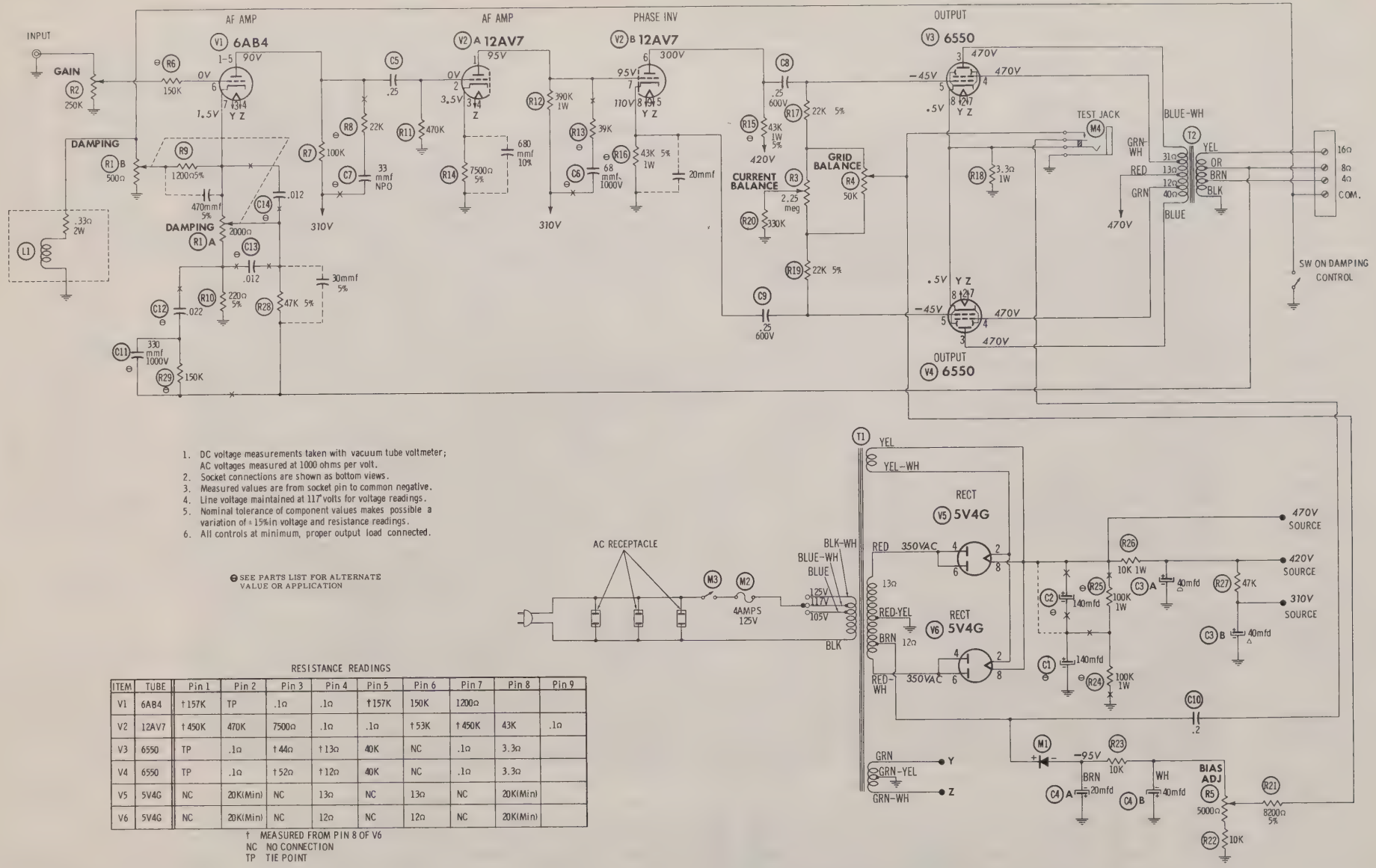
ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	FAIRCHILD PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.004A		1159	RS050	10	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FAIRCHILD PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	4A 125V S/B			313004. (3AG 4A 125V) (Slo Blo)	342001	MDX4	HKP

MISCELLANEOUS

ITEM No.	PART NAME	FAIRCHILD PART No.	NOTES
M3	Switch		Power On-Off (Toggle)
M4	Test Jack		Balance Control Adjust



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	†157K	TP	.1Ω	.1Ω	†157K	150K	1200Ω		
V2	12AV7	†450K	470K	7500Ω	.1Ω	.1Ω	†53K	†450K	43K	.1Ω
V3	6550	TP	.1Ω	†44Ω	†13Ω	40K	NC	.1Ω	3.3Ω	
V4	6550	TP	.1Ω	†52Ω	†12Ω	40K	NC	.1Ω	3.3Ω	
V5	5V4G	NC	20K(Min)	NC	13Ω	NC	13Ω	NC	20K(Min)	
V6	5V4G	NC	20K(Min)	NC	12Ω	NC	12Ω	NC	20K(Min)	

† MEASURED FROM PIN 8 OF V6
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

GROMMES MODEL 10PG

PROPERTY OF
E. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

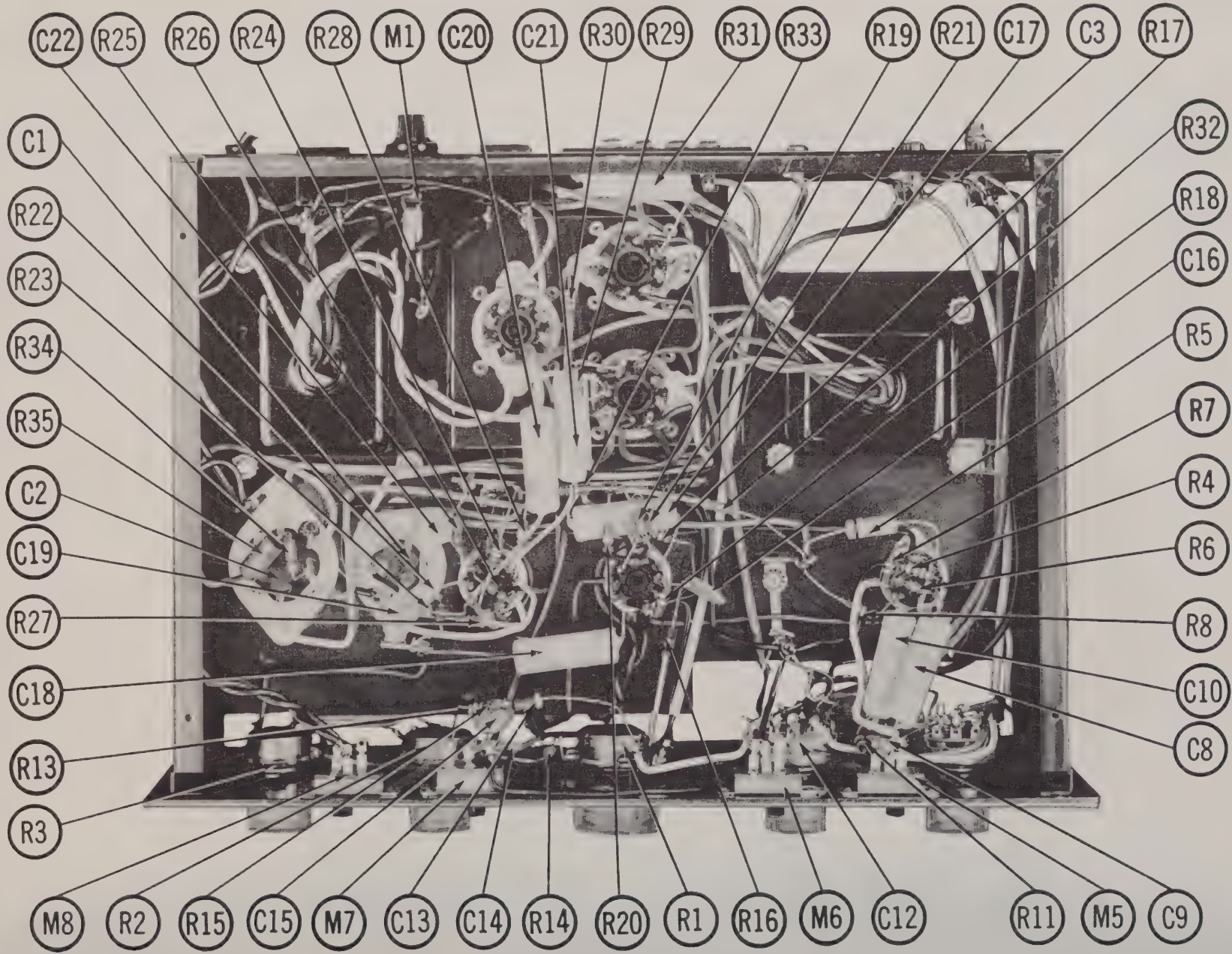
GROMMES MODEL 10PG

GROMMES MODEL 10PG

TRADE NAME	Grommes Model 10PG
MANUFACTURER	Precision Electronics, Inc., 9101 King Ave., Franklin Park, Illinois
TYPE SET	AC Operated 6 Channel 10 Watt Audio Amplifier
TUBES (Six)	Types 12AX7 Phono Preamplifier, 12AX7 AF Amplifier, 12AX7 AF Amp. - Phase Inverter, (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC - 50/60 Cycles RATING .60 Amp. @ 117 Volts AC (60 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	
V2	AF Amplifier	12AX7	
V3	AF Amp. - Phase Inv.	12AX7	

ITEM No.	USE	TYPE	NOTES
V4	Output	6V6GT	
V5	Output	6V6GT	
V6	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA							
	CAP.	VOLT.	GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.	
C1A	▲40	400		AFH4-117-48		FP367.5		Q-250	R2519 *	
B	■30	350				TC62		MTD-4510		
C	▲10	300								
D	20	25								
C2A	■10	250		AFH3-86-90	B0200	FP231		T-378	R2518 *	
B	▲10	250			BBR100-15	TC2501		MT-02100		
C	100	15								

* Non Catalog Item

FIXED CAPACITORS

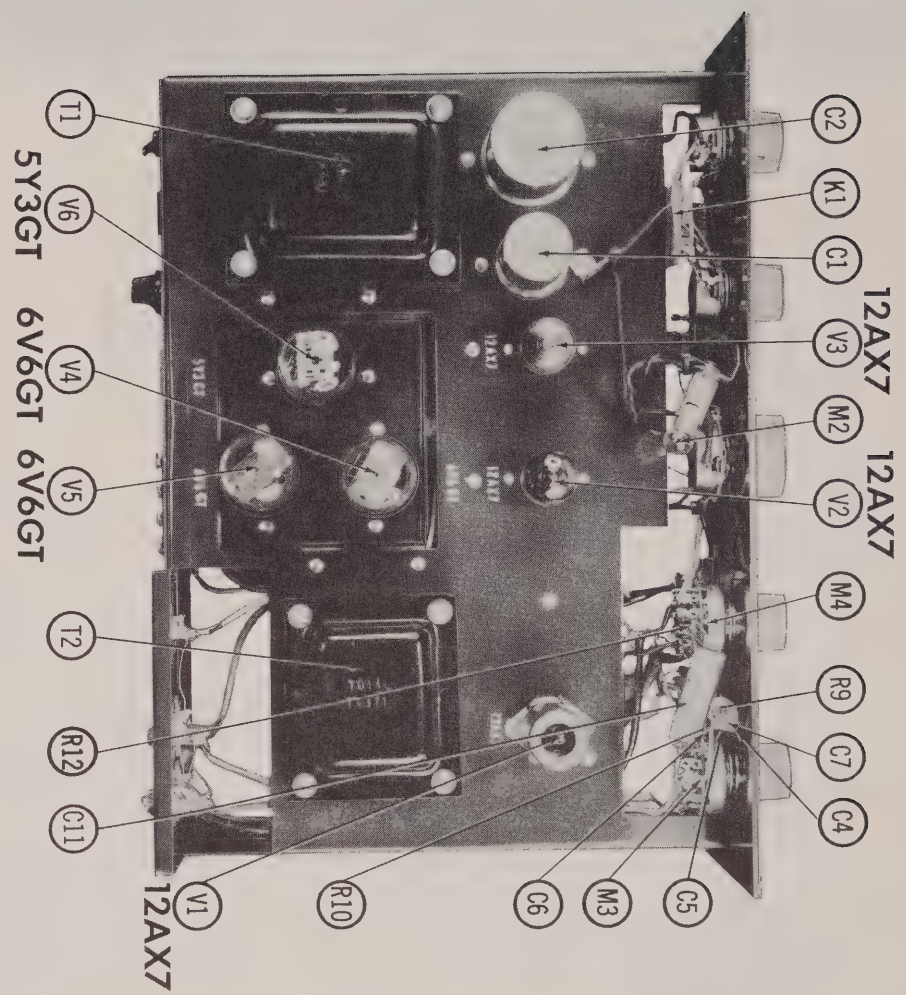
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C4	1500									10%
C5	800									10%
C6	2000									10%
C7	1000						ED-1000			10%
C8	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C9	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C10	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C11	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C12	1000						ED-1000			10%
C13	51					L10Q51				
C14	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C15	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C16	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C17	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C18	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C19	250				D6-251	L10T25	ED-250			10%
C20	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C21	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C22	1000						ED-1000			10%

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	GROMMES PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	MLC500K2T	BT-160		Q18-133XX	UDT-283	Volume, Tap @ 100K & 200K
R2A	1Meg	½	MTC-1M	B-69	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R3A	1Meg	½	MTC-1M	B-69	A47-1Meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R4	47K			
R5	100K	1		
R6	1000Ω			
R7	3.3Meg			
R8	100K			
R9	100K			
R10	3.3Meg			
R11	4.7Meg			
R12	100K			
R13	470K			
R14	47K			
R15	22K			
R16	100K			
R17	470K			
R18	3.3Meg			
R19	100K			
R20	100K			
R21	1000Ω			
R22	100K			
R23	10K			
R24	220K			
R25	1000Ω			
R26	100Ω			
R27	47K			
R28	220K			
R29	220K			
R30	270K			
R31	300Ω	7		
R32	47K			
R33	22K			
R34	1000Ω			
R35	5600Ω	2		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .6A	670VCT @ .072A	5VAC @ 2A	6.3VCT @ 1.9A	TP-2L	P9307	P-2952	PM8409	24R02	R-11B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7400Ω CT	16Ω Tap @ 8Ω, 4Ω	T0-11L						

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

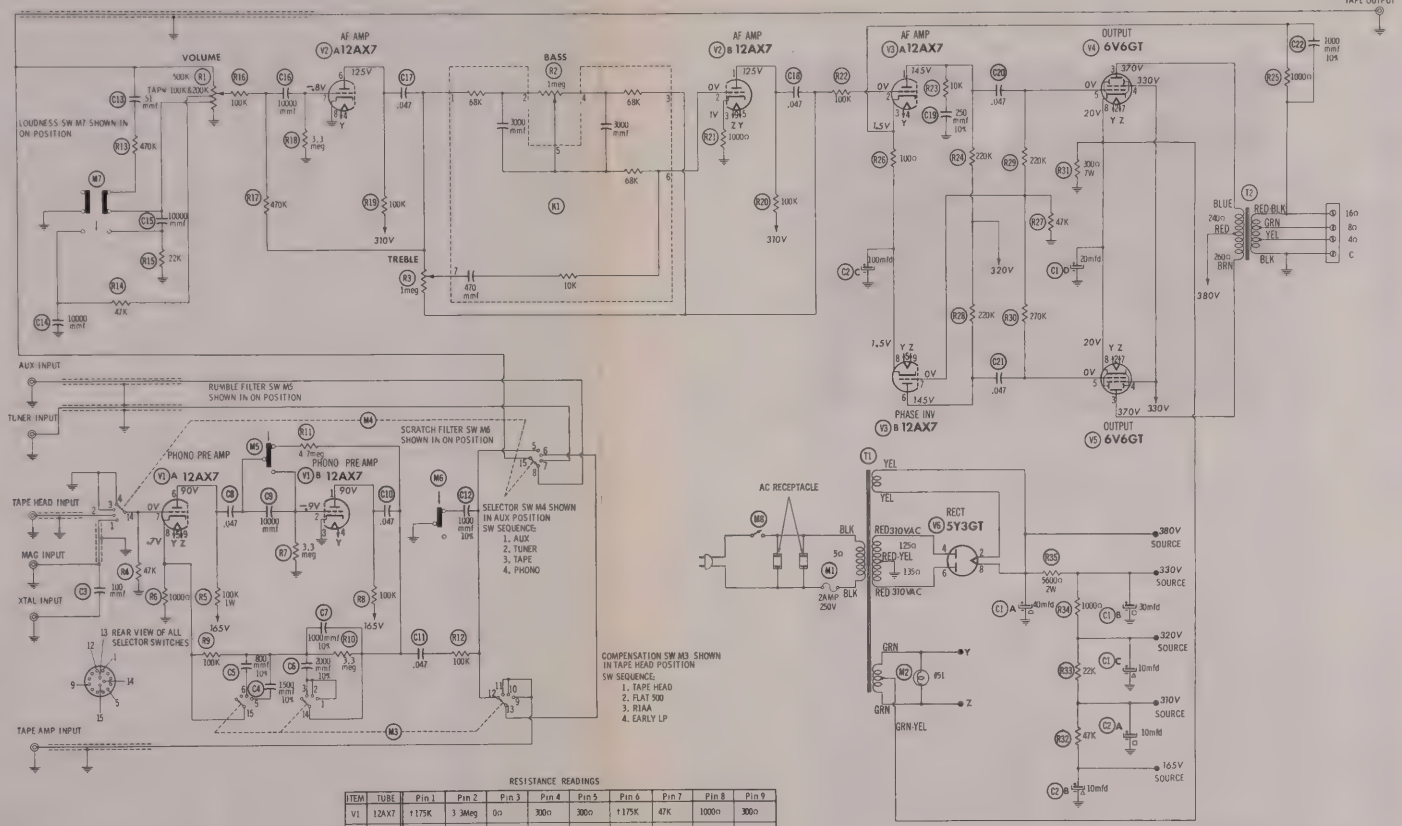
ITEM No.	USE	DESCRIPTION	GROMMES PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	3000MMF, 3000MMF, 470MMF, 68K, 68K, 68K, 10K	S191B	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA GROMMES PART No. FUSE	GROMMES PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	2A 250V			312002. (3AG 2A)	342001	AGC2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	GROMMES PART No.	NOTES
M2	Pilot Lamp		#51
M3	Switch		Compensator (Rotary Wafer Type)
M4	Switch		Selector (Rotary Wafer Type)
M5	Switch		Rumble Filter (Slide Type SPST)
M6	Switch		Scratch Filter (Slide Type SPST)
M7	Switch		Loudness (Slide Type DPST)
M8	Switch		On-Off (Slide Type SPST)



RESISTANCE READINGS

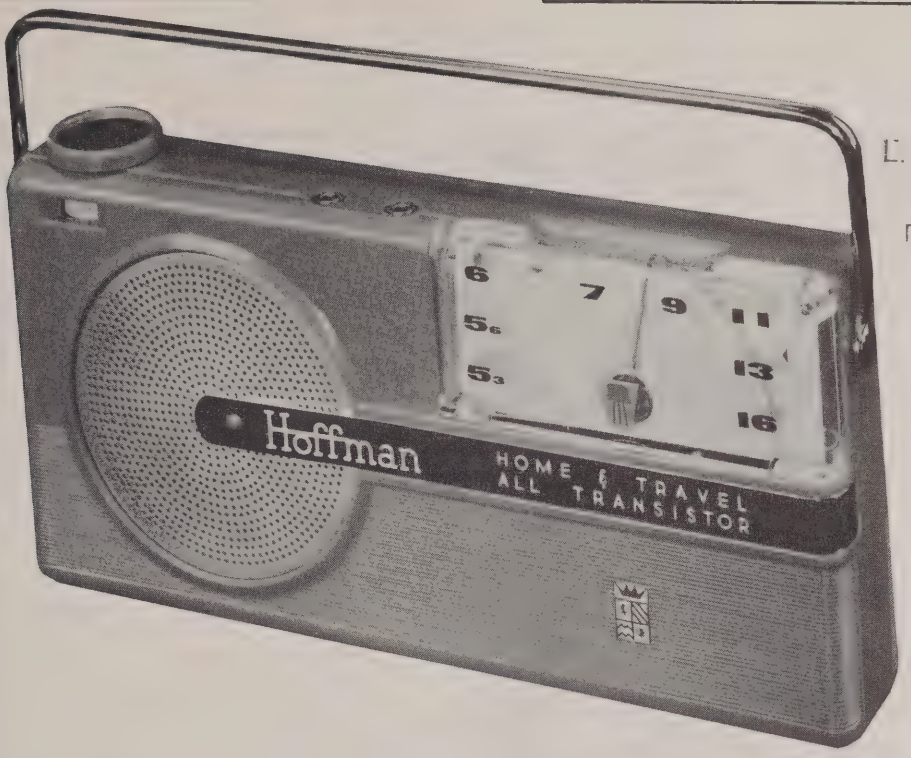
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†175K	3.3Meg	0Ω	300Ω	300Ω	†175K	47K	1000Ω	300Ω
V2	12AX7	†128K	1.1Meg	1000Ω	300Ω	300Ω	†128K	3.3Meg	0Ω	300Ω
V3	12AX7	†225K	1.2Meg	1000Ω	300Ω	300Ω	†225K	47K	1100Ω	300Ω
V4	6V6GT	NC	300Ω	†240Ω	†5600Ω	265K	TP	300Ω	300Ω	
V5	6V6GT	NC	300Ω	†260Ω	†5600Ω	315K	NC	300Ω	300Ω	
V6	5Y3GT	NC	20K(Min)	NC	125Ω	NC	135Ω	NC	20K(Min)	

ALL MEASUREMENTS TAKEN IN "TAPE HEAD" POSITION
† MEASURED FROM PIN 8 OF V6
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

HOFFMAN MODELS P410 Series, P411 Series (Ch. 1109)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



HOFFMAN MODELS P410 Series, P411 Series (Ch. 1109)

HOFFMAN MODELS P410 Series, P411 Series (Ch. 1109)

TRADE NAME	Hoffman Models P410 Series, P411 Series (Ch. 1109)
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, California
TYPE SET	Battery Operated Portable AM Transistorized Receiver (Solar Power Pack Unit Used in Model P411 Series)
POWER SUPPLY	6 Volts DC
RATING	6.8MA @ 6 Volts DC
TUNING RANGE—BROADCAST	535KC ~ 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

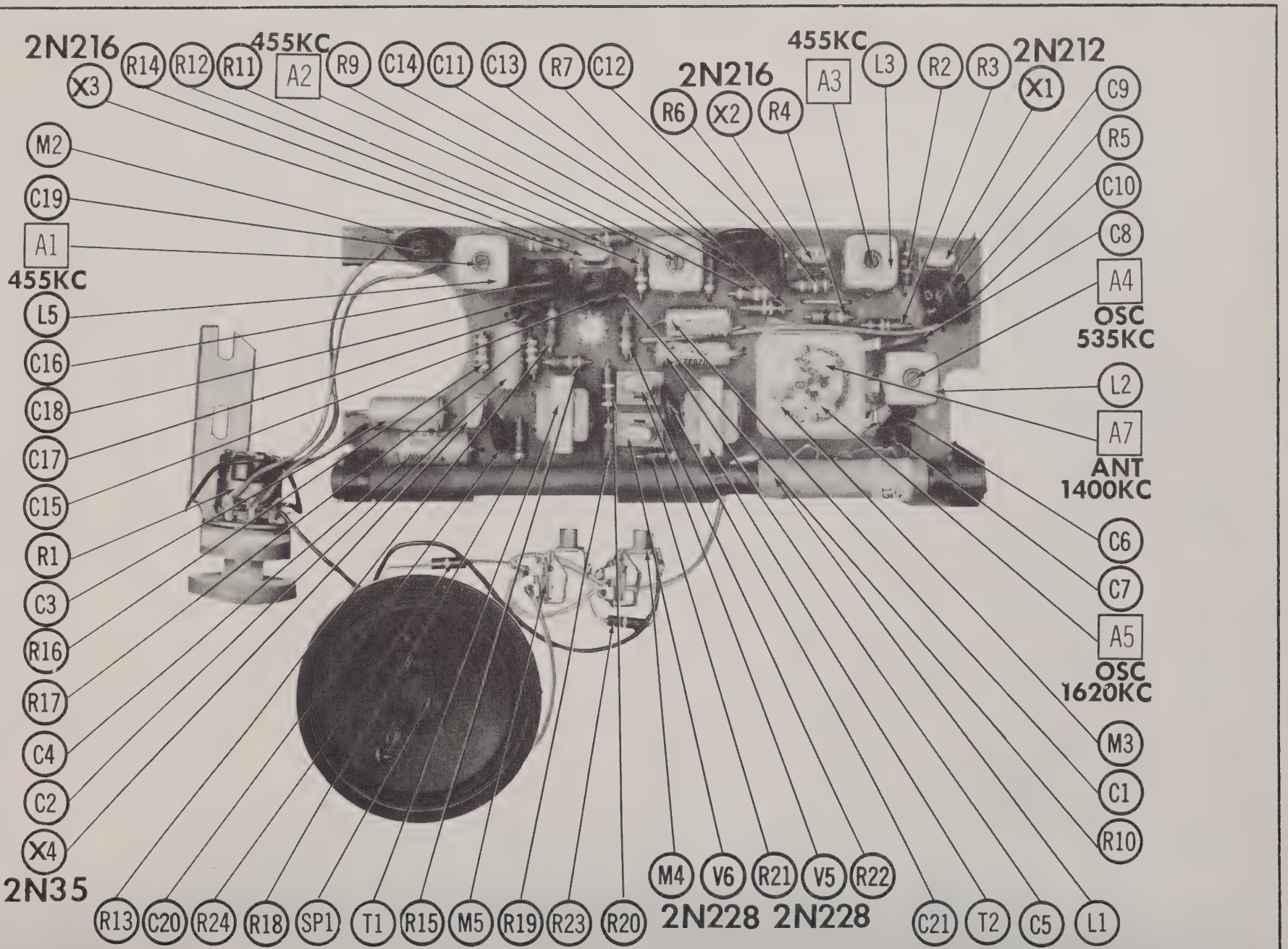
A6 is not adjustable in some versions.
Disconnect speaker, connect an 8Ω resistor across audio output transformer secondary.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod)	Tuning Gang fully open	Across 8Ω resistor connected across T2 secondary.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Reduce signal generator to maintain .2 Volt output. Repeat adjustments until no improvement is obtained.
2.		"	535KC	535KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Maintain .2 Volts output.
3.		"	1620KC	1620KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Maintain .2 Volts output. Repeat steps 2 & 3 until no further improvement can be obtained.
4.		"	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.		"	1400KC	1400KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Rock tuning gang during adjustment. Repeat steps 4 & 5 until no further improvement can be obtained.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

FOLDER 10



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N212	Converter			2N212	
X2	2N216	1st IF Amplifier			2N216	
X3	2N216	2nd IF Amplifier			2N216	
X4	2N35	AF Amplifier			2N35	
X5	2N228	Output			2N228	
X6	2N228	Output			2N228	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	3	6	856008	XPP6003	NL3-6	TT6X5	ML4-6		TE-1082
C2	3	6	856008	XPP6003	NL3-6	TT6X5	ML4-6		TE-1082
C3	50	6	856010	XPP6050	NL50-6	TT6X50	ML50-6		TE-1100
C4	50	6	856010	XPP6050	NL50-6	TT6X50	ML50-6		TE-1100
C5	25	6	856009	XPP6025	NL25-6	TT6X25	ML30-6		TE-1091

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	10		847204	NPO-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	5% NPO
C7	5		847205	NPO-SI 5	TCZ-4R7	C10V5C	TCO-5	ZT-555	5TCCB-V5	①
C8	100000		851009						TG-P10	
C9	10000		851007	BPD-01	DD-103	BYA6S1	ED-01	DC511	TG-S10	
C10	2200		851010	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C11	50000		851008						TG-S50	
C12	50000		851008						TG-S50	
C13	50000		851008						TG-S50	
C14	10		847204	NPO-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	5% NPO
C15	50000		851008						TG-S50	
C16	50000		851008						TG-S50	
C17	10		847204	NPO-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	5% NPO
C18	50000		851008						TG-S50	
C19	50000		851008						TG-S50	
C20	1000		851006	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C21	100000		851009						TG-P10	

① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HOFFMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	800008					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		HOFFMAN PART No.	NOTES
	OHMS	WATT		
R2	18K		814207	
R3	100K		814216	
R4	1000Ω		814192	
R5	1800Ω		814195	
R6	3900Ω		814199	
R7	100K		814216	
R8	1000Ω		814192	
R9	470Ω		814188	
R10	3900Ω		814199	
R11	15K		814206	
R12	100K		814216	
R13	1000Ω		814192	

ITEM No.	RATING		HOFFMAN PART No.	NOTES
	OHMS	WATT		
R14	470Ω		814188	
R15	15K		814206	
R16	4700Ω		814200	
R17	47K		814212	
R18	220Ω		814184	
R19	120Ω		814181	
R20	4700Ω		814200	
R21	10Ω		814168	
R22	100Ω		814180	
R23	22Ω		814172	
R24	22Ω		814172	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1:	1	726001				TR-1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	407Ω CT	6-8Ω	724007				TR-22		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HOFFMAN PART No.	QUAM PART No.	
SP1	2½"	PM	6-8Ω	708005	25A1Z8.3R	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		HOFFMAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	924001-3			2021	Alt. Part #924001
L2	Osc. Coil	768005				
L3	1st IF	760005	16-9003			
L4	2nd IF	760005	16-9003			
L5	3rd IF	760006	16-9004			

BATTERIES

ITEM No.	VOLTAGE	HOFFMAN PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	6	930001 ①	#1		635		M14		1LP		4 used in series

① Part #930002 (Rechangeable cell) used in Model P411 Series

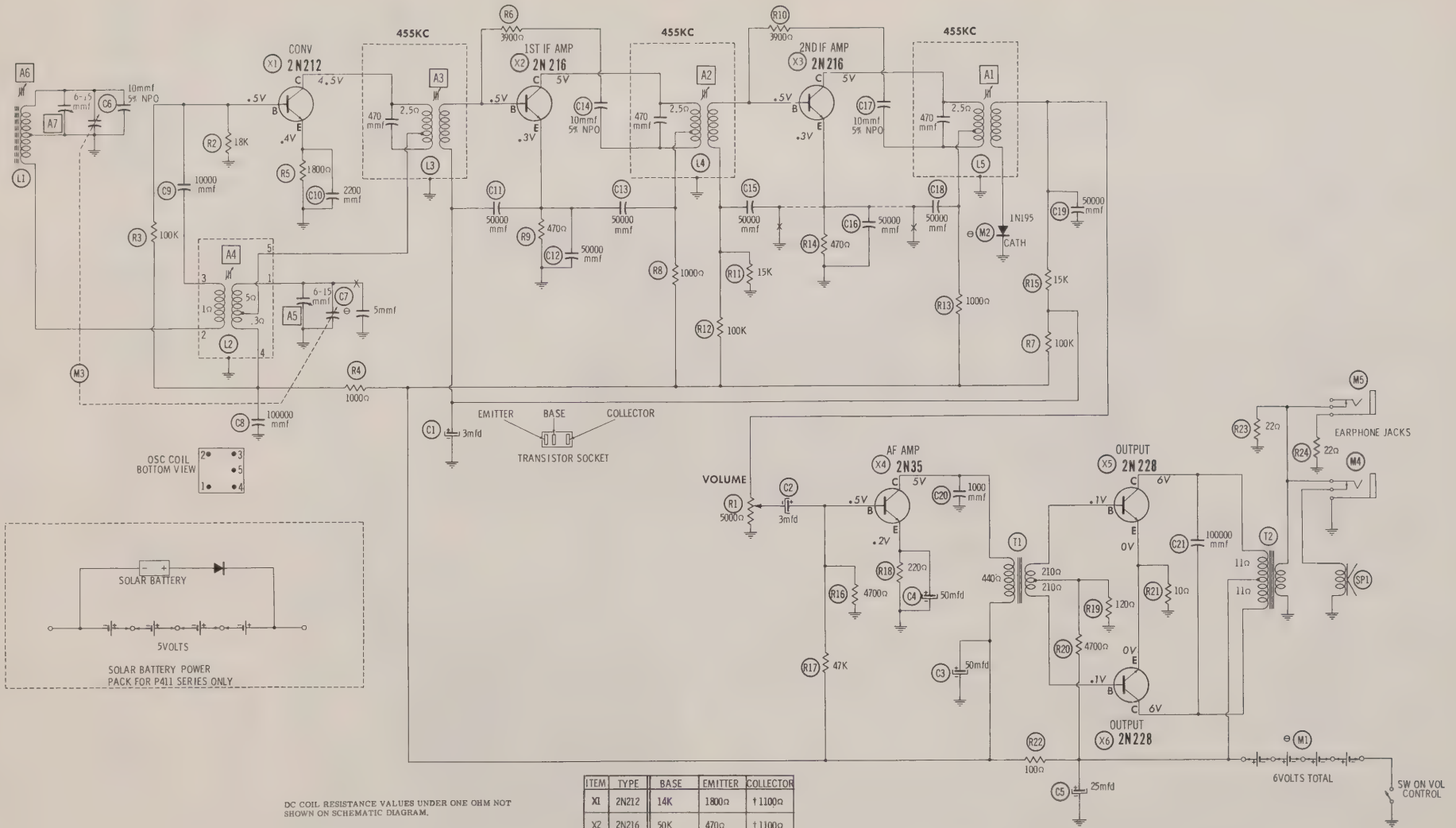
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		HOFFMAN PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295 ①	742002 ①	1N60	1N34A	Audio Det. (Alt. Types: 1N60, 1N87G)

① Alternate Part #742001 (Type 1N450) used in Model P411 Series

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M3	Tuning Cap.	872001	2 Gang (Ant. 15-260MMF)
M4	Earphone Jack	934012	
M5	Earphone Jack	934012	



ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N212	14K	1800Ω	†1100Ω
X2	2N216	50K	470Ω	†1100Ω
X3	2N216	12K	470Ω	†1100Ω
X4	2N35	4300Ω	220Ω	†540Ω
X5	2N228	330Ω	10Ω	†11Ω
X6	2N228	330Ω	10Ω	†11Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS
† MEASURED FROM JUNCTION OF R20, R22, AND C5

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

MONARCH MODEL UA8

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

MONARCH MODEL UA8

MONARCH MODEL UA8

GENERAL INFORMATION

The Monarch Model UA8 Record Changers are designed to play in automatic sequence a stack of records and shutoff after playing the last record on 33 1/3, 45 or 78 R.P.M. For 16 2/3 R.P.M. records, the changer has to be operated manually.

As many as ten records of average thickness and of the same type may be stacked on the spindle.

The tripping method used is the velocity type in which the trip link causes a trip pawl to engage a projection on the turntable hub and start the mechanism into cycle.

Connect this changer to an outlet supplying 117 volts, 60 cycle only.

DISTRIBUTOR:

DISCUS CORPORATION
514 BROADWAY
NEW YORK, NEW YORK

MANUFACTURED BY:

BIRMINGHAM SOUND REPRODUCERS LTD.
MONARCH WORKS
OLD HILL, STAFFS
ENGLAND

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

Copyright 1957 • All Rights Reserved

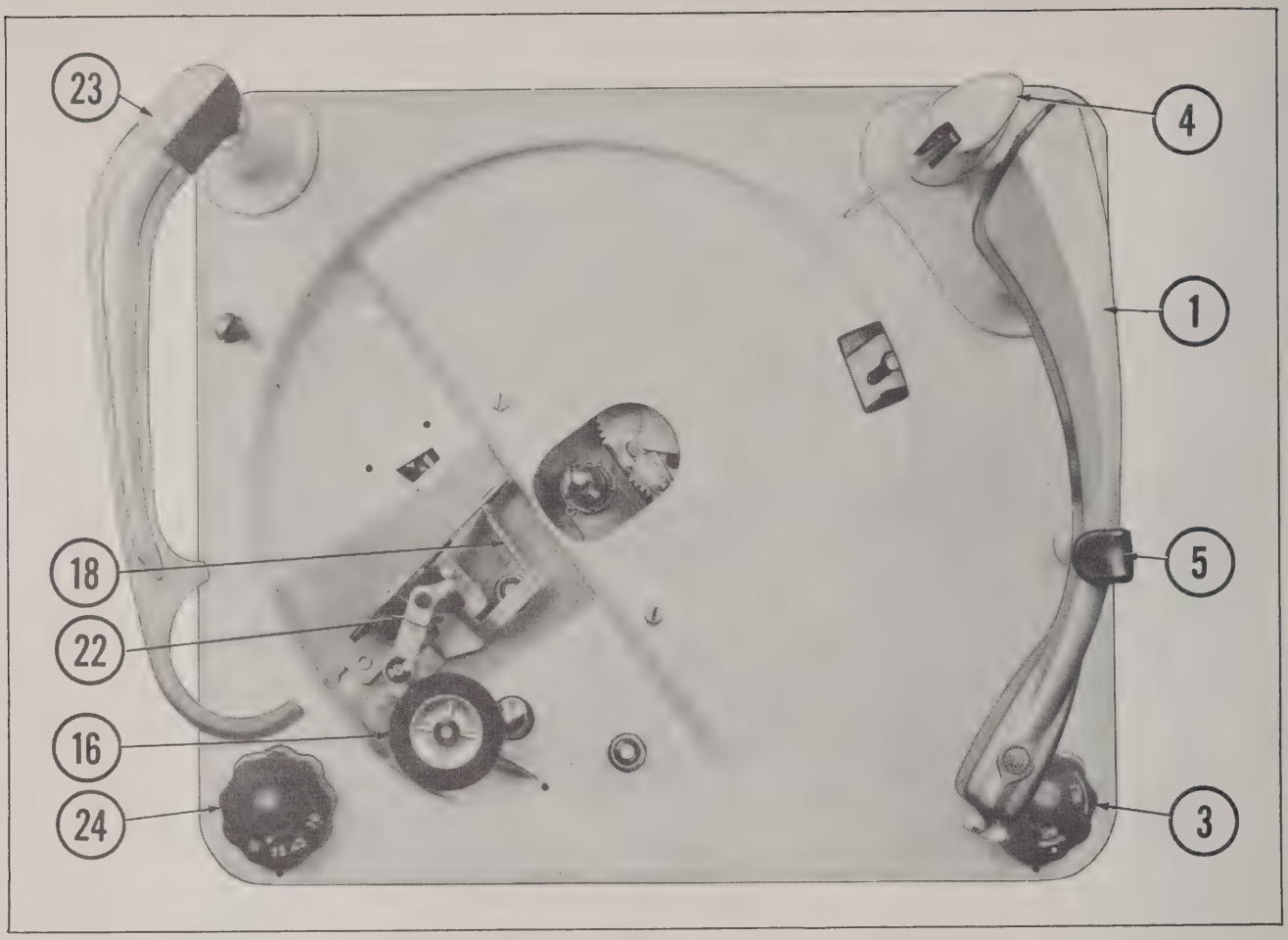


FIGURE 1

OPERATING INSTRUCTIONS

Loading –

1. Pull straight up on record Control Arm (23) until it clears spindle, swing Control Arm to the left as far as it will go.

2. Place records on spindle and lower to offset shelf. Hold records level and replace record Control Arm over spindle.

Starting –

To start the changer, after checking that the stylus and speed controls are in the position corresponding to type records to be played, except for 16 2/3 R.P.M. records which have to be played in the manual position, turn "Off-On-Rej." knob to "Rej." and release. The changer will operate automatically until the last record has been played, at which time, the pick-up arm is returned to its rest and the supply to the motor is switched off.

Rejecting –

To reject a record at any time while the changer is operating, turn "Off-On-Rej." knob to "Rej." and release.

Stopping –

The changer may be stopped any time a record is playing by turning changer control knob to "Off". Lift pick-up arm and place on rest.

Unloading –

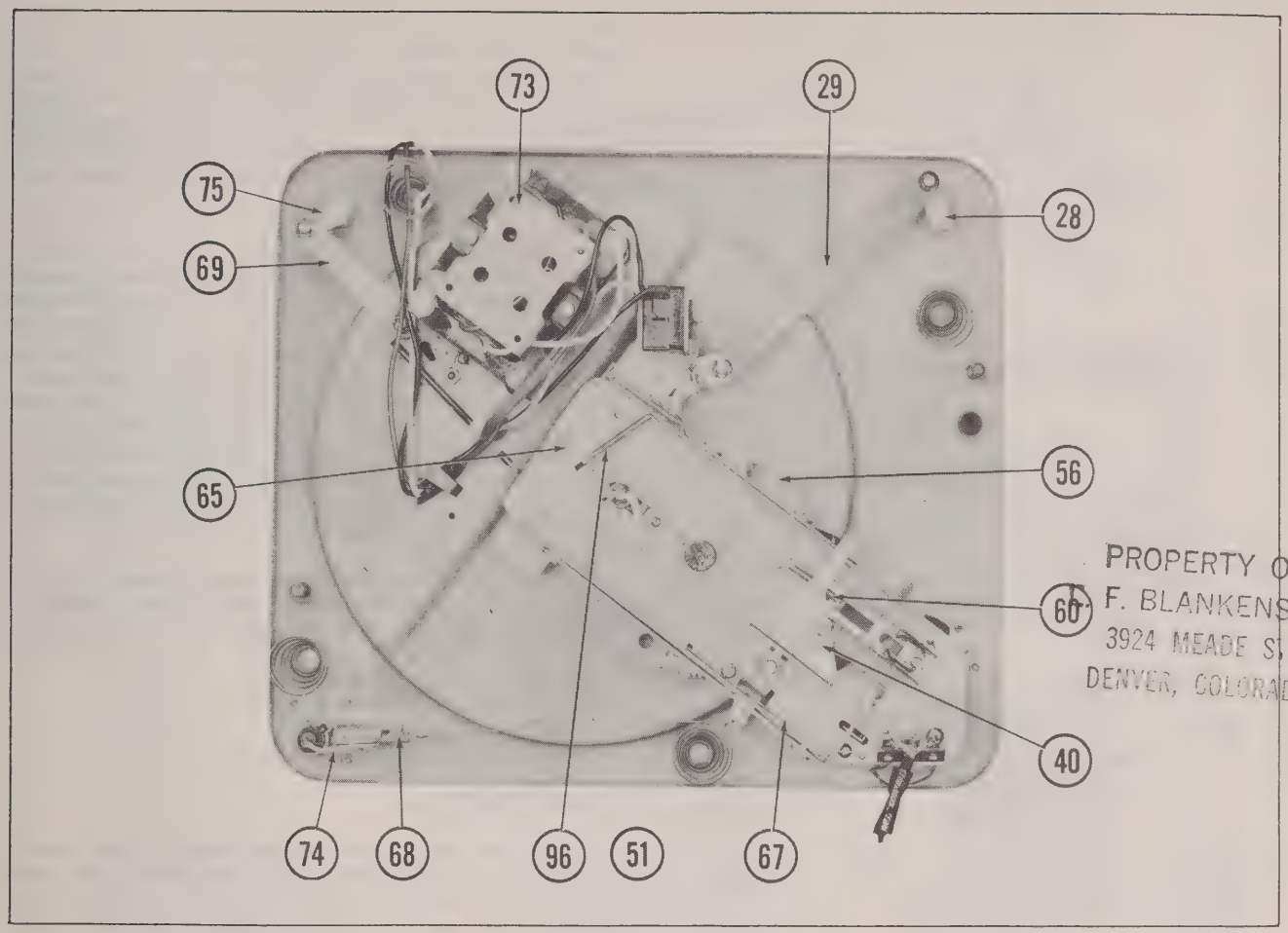
Lift Record Control Arm clear of spindle and swing out of the way. Grasp the records together and lift gently from the Center Spindle, easing them past the ledge on the spindle.

Manual Operation –

Records that do not have starting and fast-finishing grooves must be played manually. Place record on the turntable and replace Control Arm in its operating position. Turn "On-Off-Manual-Rej." knob to the "Manual" position only. The turntable will now revolve at the selected speed. Lift the pickup off its rest and place in position on record. The record will now play and when completed the pick-up will return to rest and the unit will switch off automatically in the normal manner.

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the turntable by hand. The action described below can then be readily followed and the function of each part more easily understood.



PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

FIGURE 2

This changer is provided with what is known as velocity trip mechanism. The change cycle is started by the faster inward motion of the pick-up arm when the needle enters the trip grooves at the end of the record. Only records having fast-finishing grooves will operate this trip.

The pick-up arm (1) and hinge assembly (92) and the Pick Up Spindle Bracket (31) are secured together and move in unison, as the pick-up arm nears the end of the record, the Actuating Lever (43) moves into contact with the Friction Link (54) which in turn moves the Actuating Pawl (55) into the projection on the turntable hub. While the record is playing the Actuating Pawl (55) remains stationary, because on each revolution of the turntable the Actuating Lever is moved gradually inward by action of the grooves on the record. When the needle enters the fast finishing grooves the Actuating Lever (43) makes contact with the Friction Link (54) which in turn moves the Actuating Pawl (55) into the projection on the turntable hub.

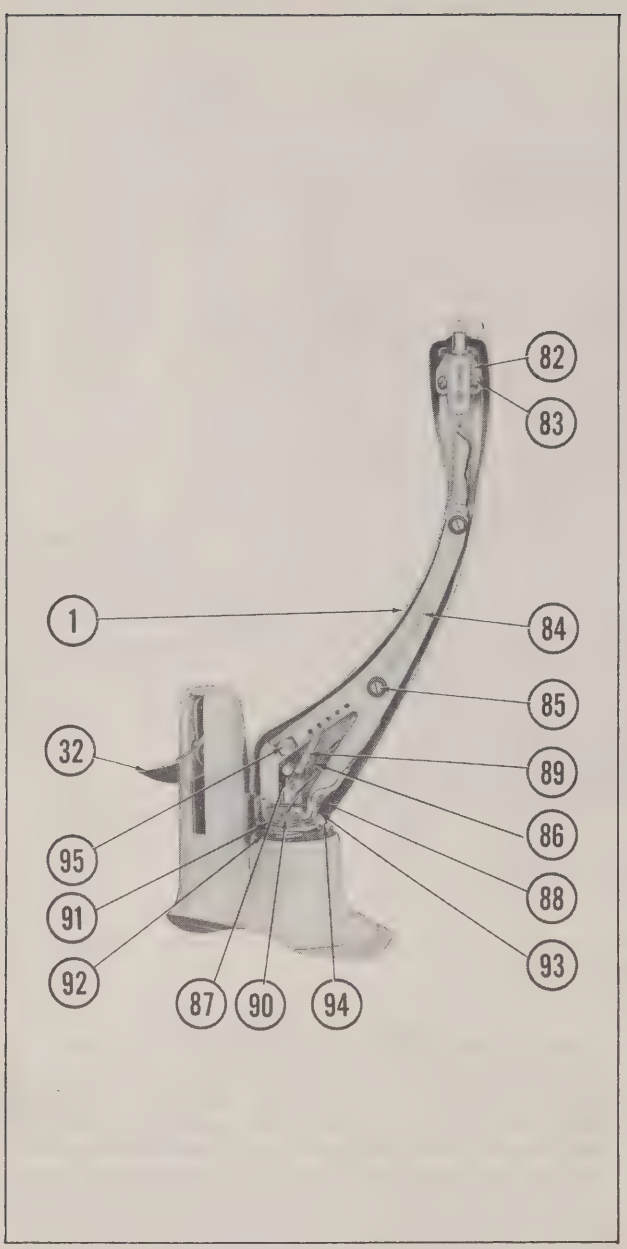
The contact between the Actuating Pawl (55) and the turntable hub projection gives the necessary push for the teeth in the Cam Gear (56) to engage the teeth in the turntable hub, thus causing the Cam Gear (56) to rotate. This in turn, starts the lateral travel of the Main Slide (58). The Main Slide (58) moves to the rear thru the action of the Cam Gear (56) which comes in contact with the side of the Main Slide (58), thus pushing it forward.

As the Main Slide (58) begins to move, point A of Main Slide (58), "see exploded view", lets the Toggle Slide (38) move forward thru the action of Toggle Slide Return Spring (60). The Toggle Wire (39) moves the Pick Up Spindle (30) upward, raising the Tone Arm (1) clear of the record. As the Cam Gear (56) continues to rotate, point B, "see exploded view," of Main Slide (58) comes into contact with the Reset Pin (33) which in turn moves the Tone Arm (1) outwards.

As the Cam Gear (56) continues to rotate, the Main Slide (58) moves forward to a point where it no longer comes in contact with the Reset Pin (33). At the same time the Guide Pin on Main Slide (58) moves the Record Feed Link (65) forward which moves the Record Feed Spindle (77A) in turn moves the Record Feed Lever inward which lets the record drop on to the Turntable (10).

If 7" records are being changed, the Selector Column Assembly (32) is not in use, this lets the Stop Plate Bearing (34) to continue to the last notch. Thus letting the Tone Arm (1) move inward to the 7" position.

If 10" records are being changed, the Selector Column Assembly (32) is in operation. When the 10" record strikes the Selector Arm Moulding (32A), forcing it downward, which in turn forces the Selector Slide (32B) down to the 10" position. As the Tone Arm (1) moves inward, the Stop Plate Bearing (34) continues to the second notch. This lets the Tone Arm (1) move inward to the 10" position.



TONE ARM ASSEMBLY

If 12" records are being changed, the Selector Column Assembly (32) is in operation. When the 12" record strikes the Selector Arm Moulding (32A), forcing it downward, which in turn forces the Selector Slide (32B) down to the 12" position. As the Tone Arm (1) moves inward, the Stop Plate Bearing (34) continues to the first notch. This lets the Tone Arm (1) move inward to the 12" position.

As the Cam Gear (56) continues to revolve, the Main Slide (58) starts its inward travel, which lets the Toggle Slide (38) move inward causing the Toggle Wire (39) to pull the Pick Up Spindle (30) down. This causes the Tone Arm (1) to set down in the lead in groove of the record. This permits the Tone Arm (1) to move freely across the record.

After the mechanism has been tripped it again follows the preceding sequence of cycling and playing the records until the last record of the stack has been played.

As the last record of the stack drops to the turntable the Control Arm Assembly (23) drops below the shelf on the Center Spindle Assembly (77) and the lower end of record Control Arm Assembly (23) contacts the Stop Bracket Assembly (74). This Stop Bracket Assembly (74) in turn applies force to the Stop Lever (40). At this moment the Main Slide (58) is in the inward position (near the Center Spindle Assembly (77)).

As the Cam Gear (56) nears its out of cycle position, the Tab (56A), "see exploded view", makes contact with Cut Off Lever (64). This is brought about by the action of the Control Arm Assembly shaft pushing the Stop Bracket Assembly (74) which applies tension on the Adjusting Link (51), which in turn pivots Stop Lever (40) into the Cutoff Arm (64). The Tab (56A) on the Cam Gear (56) is then moved into the Cut Off Arm (64) which pushes the Latch Plate (63) into the switch. The Cam Gear (56) is now in the out of cycle position, and power is shut off to the motor, this completes the change cycle.

As the Main Slide (58) moves to the out of cycle position, the Pick Up Spindle (30) moves downward and lowers the Tone Arm (1) to the Tone Arm Rest (7).

ADJUSTMENTS

Needle Set-Down —

The set down position of the needle on the record is adjusted by manipulation of the needle adjusting screw (94). Adjust this screw until the correct set down of the needle on a 10" record is obtained. The correct position is 1/8" from the edge of the record. It is advisable to make this adjustment with a stack of 10" records on the turntable. When correctly positioned for a 10" record, the 7" and 12" needle set down will also be correct.

Pickup Arm Height —

The pickup arm height is adjusted by the pickup height adjusting screw (95). To raise the height of the pickup arm, turn this screw counter clockwise. To lower the pickup arm turn clockwise. The pickup height should be adjusted so that with a stack of ten average thickness records on the turntable, the point of the needle clears the top record by 1/16 inch. A check should then be made to ensure that the pickup arm clears the under side of records loaded on the center spindle.

Needle Pressure —

Adjustments may be made by repositioning the pickup balance spring (89) in the various adjusting holes provided until the correct pressure is obtained.

Adjusting Of Speed Change —

1. Set the four speed knob at the 16 2/3 r.p.m. position.

2. Slacken grub screws on the 4-speed pulley (61) and adjust until the jockey pulley (16) is engaged on the smallest pulley diameter just clear of the top step.

3. Tighten grub screws.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

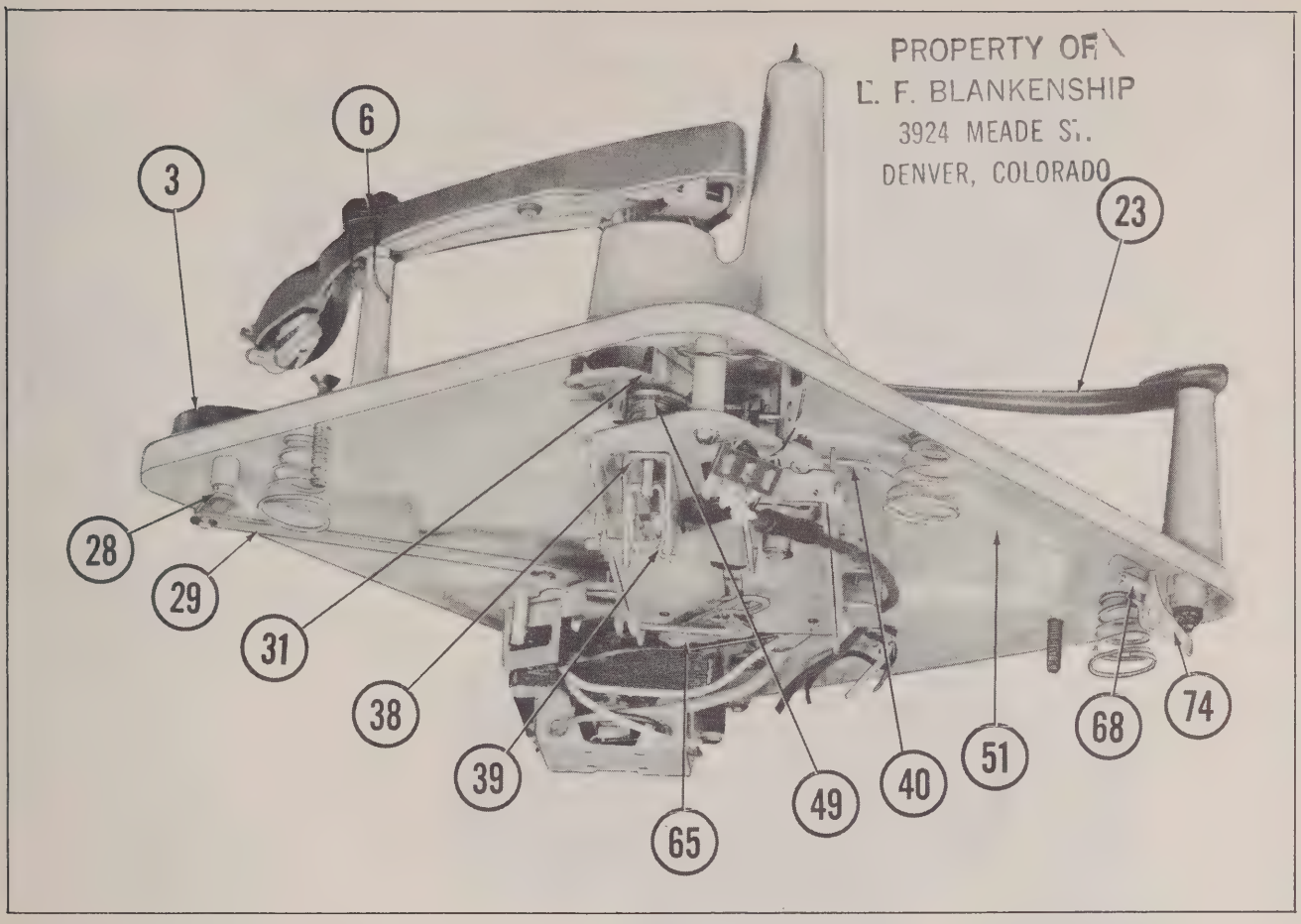


FIGURE 3

LUBRICATION

A periodic check should be made to ensure that your Changer is lubricated adequately at the points detailed below:

Heavy grease should be used on the following points:

1. Main Slide (58), grease faces rubbed by cam on Cam Gear (56) and also end of tongue.

2. Actuating Lever (43), grease inside face of pawl resetting strip.

3. Reset Arm (37), grease portion that rubs on Cam Gear (56).

4. Main sub-plate, grease guide slots.

5. Ballrace (79), fill ballrace cup with grease and assemble with open end upwards.

6. Four speed pawl (26), grease nose of pawl.

7. Speed change slide (21B), grease location steps.

Light oil should be used on the following points:

1. Control Spindle (Part of 23), oil spindle.

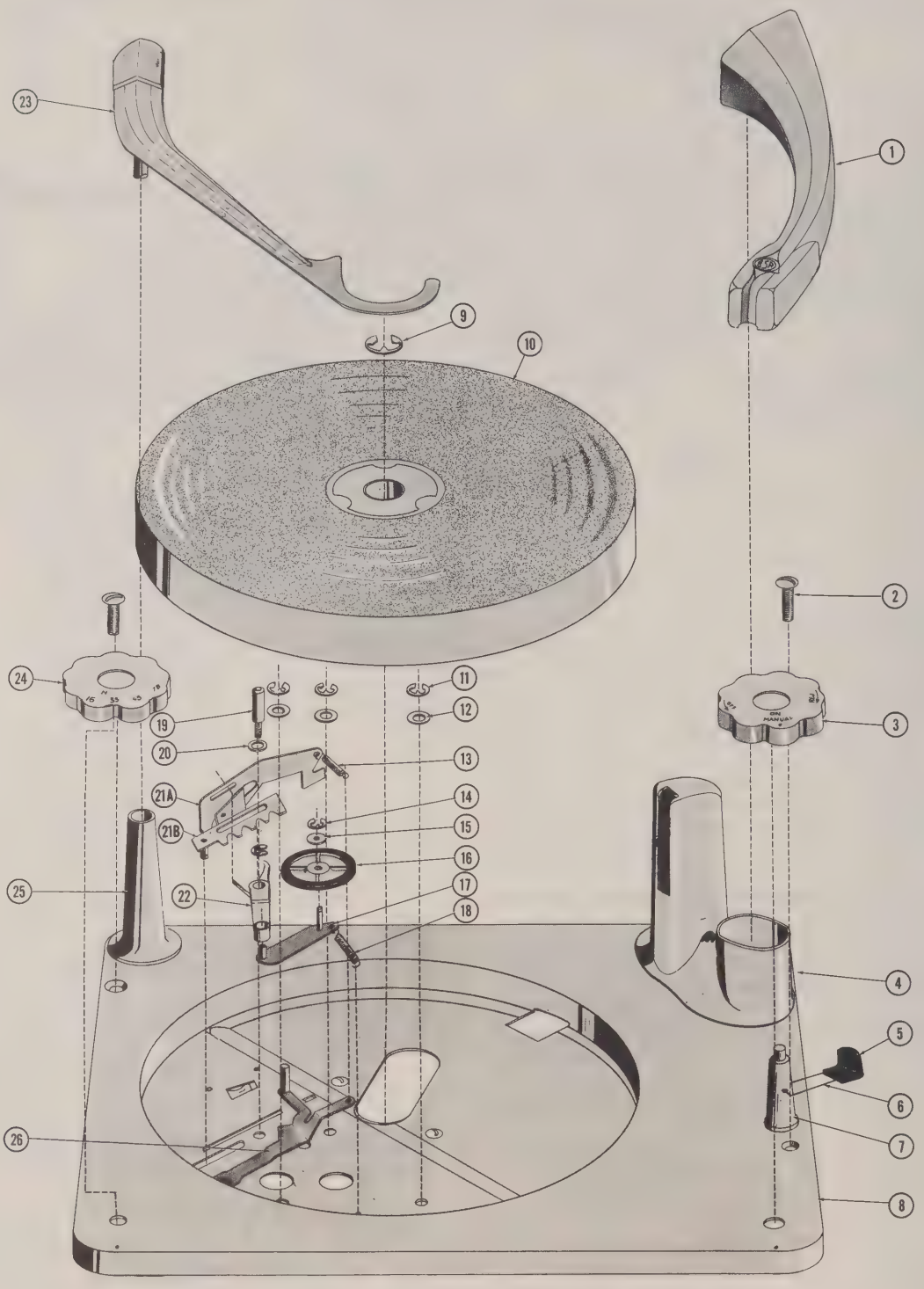
2. Turntable Bearing.

3. Jockey pulley Bearing.

4. Speed Change Slide (21B), oil portion of main-plate over which slide moves.

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Turntable does not rotate when On-Off-Reject knob is turned to "On".	1. No current to motor.	a. Check to see if current has reached external main leads. b. Check that switch box assembly is functioning correctly. c. Check all wiring and solder terminals to and from the switch box assembly.



A PHOTOFACT "EXPLODED" VIEW
© Howard W. Sams & Co., Inc. 1957

FIGURE 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE

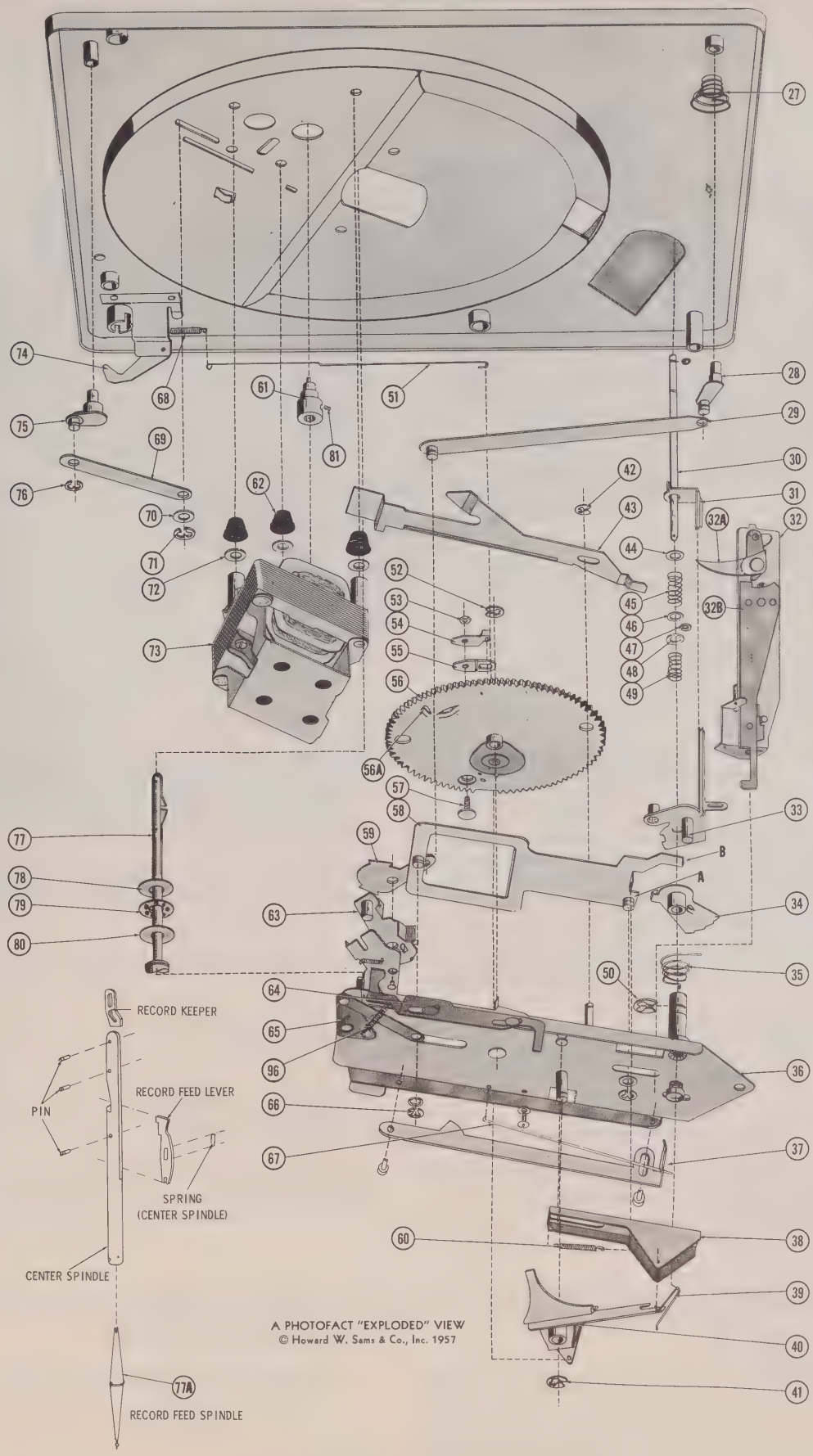


FIGURE 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

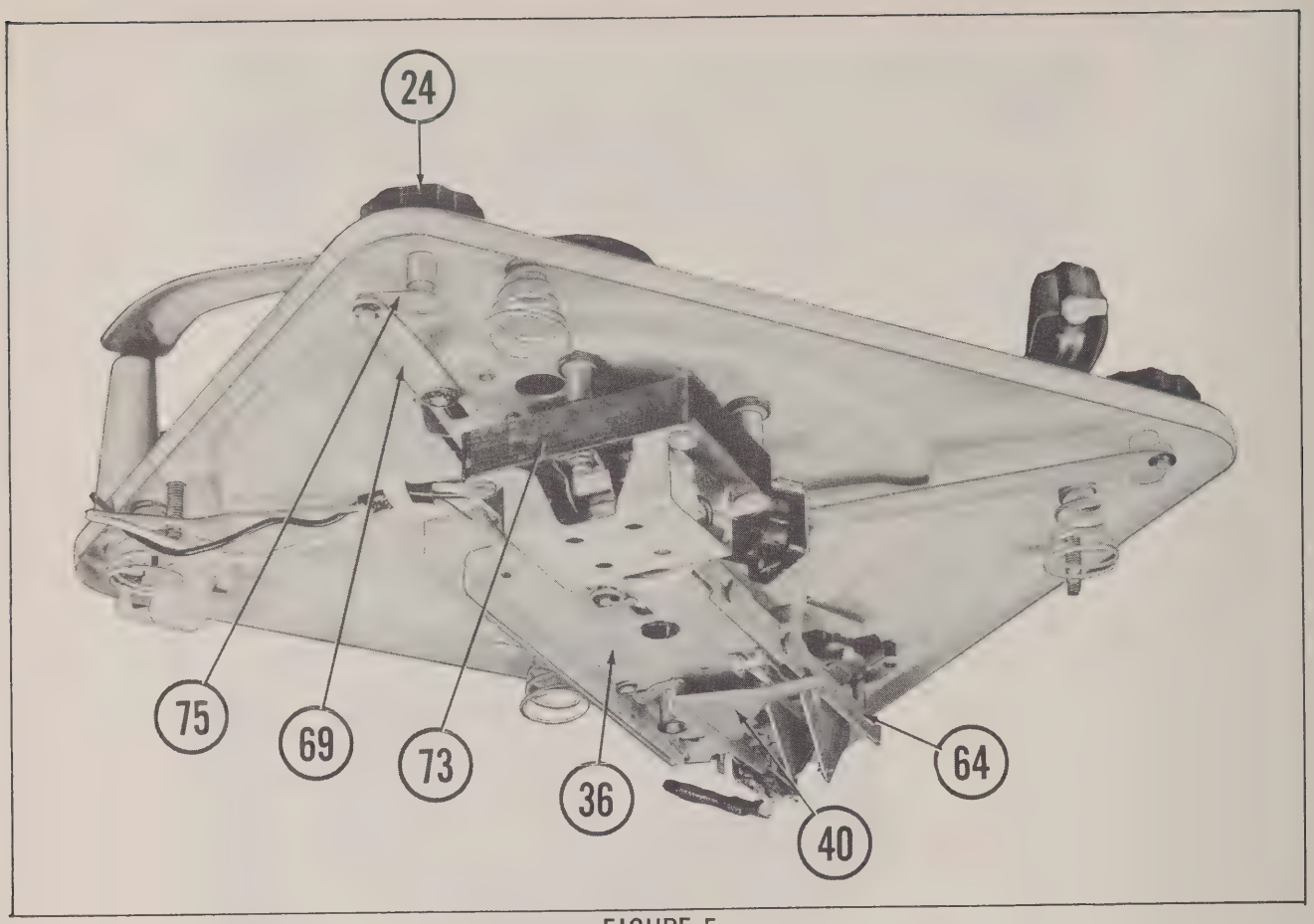


FIGURE 5

	2. Motor Defective.	a. Remove the turntable and allow the motor to operate without load. If motor spindle is not rotating and main supply is reaching the motor, the motor is faulty. Replace motor.
		b. Check that the 4-speed pulley is not loose on motor spindle. If loose adjust as under "Adjustments of Speed Change."
	3. Jockey Pulley not engaging turntable rim.	a. Check that the jockey pulley is free to pivot.
		b. Check that the jockey pulley spring is correctly positioned.
		c. Carefully clean the inside rim of turntable and rubber tire on jockey pulley to ensure that they are free from oil and grit.
Turntable revolves when On-Off-Reject knob is turned to On but pickup remains stationary on its rest.	Incorrect manipulation of control.	Ensure that the On-Off-Reject knob is turned to its fullest extremity in the On direction. This does not apply when operating the changer manually.
Pickup lifts but fails to move in when record drops. The pickup returns to rest and the turntable continues to revolve.	1. Stop pin not dropping freely.	a. Remove all grease, oil, grit, burrs or rust carefully from the stop pin and spring and ensure that spring is not damaged.
	2. Adjusting Link (51) too tight.	b. Slacken adjusting link by decreasing bend.
	3. Stiffness in Stop bracket assembly (74) bearing.	c. Free and lightly oil.
Pickup lifts but fails to	1. Cut Off Arm (64) not	a. Cut off arm spring damaged. Replace.

move in when record drops. Pickup returns to rest and changer switches off.	returning to neutral position.	b. Friction on moving surfaces of cutoff arm. Check for rust, frays in slots, etc.
	2. Undue friction at Stop Lever Assembly (40).	Remove, clean and lightly oil.
	3. Stiffness in Stop Bracket Assembly bearing (74).	Free and lightly oil.
Pickup arm strikes record on spindle when it rises or needle catches on last record when it moves out.	1. Pickup arm height not adjusted properly.	a. See instructions for "Adjusting Pickup Arm Height under Adjustments."
	2. Control Arm (23) not holding records level.	b. Hold Control Column securely and twist control arm until it will hold record stack parallel to top of turntable.
	3. Needle bent in crystal cartridge.	c. Replace needle.
Turntable speed too slow.	1. Tightness in motor bearing.	a. Tap lightly the side of motor laminations to free self aligning bearings.
	2. Binding in turntable bearing.	b. Check turntable bearing for freedom. If it does not turn easily when disengaged from the jockey pulley ass'y., remove turntable, clean off foreign matter and lubricate with light mineral oil.
	3. Jockey Pulley Slip.	c. Remove turntable and clean rim of jockey pulley. Oil jockey unit joints and pivots and make sure all move freely. Remove any trace of oil on jockey pulley rubber or inside of turntable rim.
	4. Undersize 4-speed pulley.	d. Remove turntable and fit new 4-speed pulley. Pulleys are available as follows: Small — Red Pulley; Medium — Green Pulley; Large — Blue Pulley. To increase turntable speed remove existing pulley from the motor shaft and fit the next size larger, or vice-versa to to reduce speed. When fitting new 4-speed pulley see "Adjustment of Speed Change under Adjustments."
	5. Main voltage too low.	e. The main voltage should not be less than 100 volts.
	6. Operating temperature too low.	f. If the machine has been standing in a cold place or operated in surroundings at a temperature of less than 45°F. the turntable speed may be too slow initially.
Turntable speed too fast.	Oversize 4-speed pulley.	Replace 4-speed pulley as instructed at '4' under Turntable Speed too Slow.
Changer continues to cycle with pickup dropping onto record during every cycle.	1. Pawl reset strip distorted.	a. Make sure that this strip is straight and resets. Friction Link (54) and Actuating Pawl (55) by engaging with Friction Link shoulder during cycle.
	2. Actuating Pawl and Friction Link assembly too free.	b. Damp down the bearings of this assembly by smearing with medium grease.
Noise during playing of record.	1. Motor rumble.	a. If a low pitched rumbling sound comes from the loudspeaker while the record is being played, check the motor rubber mountings to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float.
	2. Defective turntable bearing.	b. Check for foreign matter in the bearings, defective balls, binding between balls, ball cage and

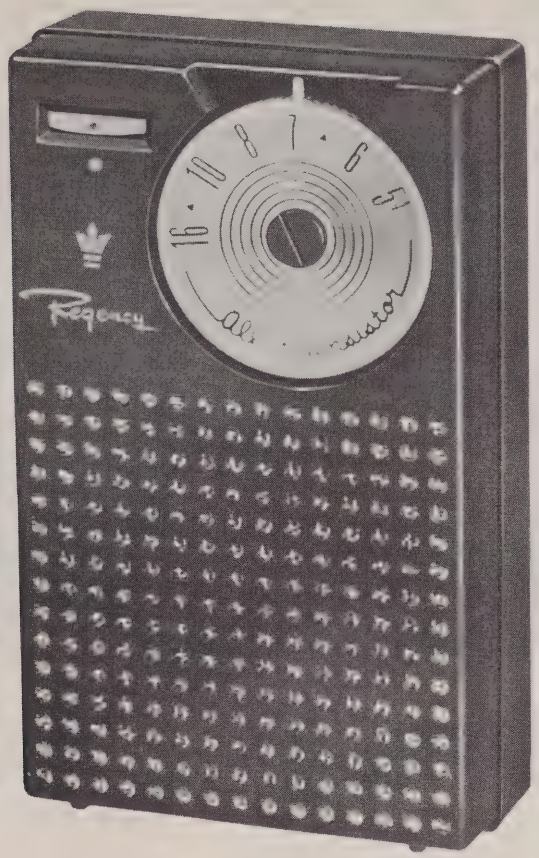
		thrust washers. Grease ball race and washers. Lubricate with light mineral oil.
	3. Defective jockey pulley.	c. A rapid thumping sound while the motor is running may indicate a flat on the motor jockey pulley (16). If this condition has not cleared up after 10 minutes of running time, remove the turntable and check the rubber tire on the jockey pulley. If the surface is not smooth, replace. Should the bearings of the jockey assembly show signs of excessive wear, replace the jockey unit assembly.
	4. Defective record.	d. Worn or defective records cause needle scratch and distortion of the recorded sound. If the record is warped, it may slip on the other records causing wow. An enlarged hole in the record can also cause wow.
	5. Squeaks.	e. Squeaking sounds as the changer operates indicates a lack of oil. Lubricate.
Distortion of recorded sound.	1. Defective record.	a. See '4' under Noise during playing of record.
	2. Defective amplifier.	b. Check both amplifier and speaker.
	3. Bad cartridge.	c. Replace.
	4. Dust on needle.	d. Brush off dust with finger.
No sound during playing.	1. Defective cartridge.	a. Replace.
	2. Defective wiring.	b. Check pickup leads for short or open.
	3. Defective amplifier.	c. Check amplifier and speaker.
	4. Loose cartridge socket tags.	d. Remove, tighten slightly and replace.
Changer does not shut off after last record has been played, possibly continuing to play the last record from the 7" position.	1. Control Arm binding.	a. The record control arm must drop below the offset shoulder of the center spindle or the changer will not shut off.
	2. Adjusting Link (51) broken, disconnected or too slack.	b. Replace or repair.
	3. Stop Pawl Spring (68) loose or broken.	c. Replace or Repair.
	4. Undue friction at stop lever assembly bearing.	d. Remove, clean and lightly oil.
Changer returns pickup to rest before all records have been dropped. Turntable continues to revolve or changer switches itself completely off.	Adjusting Link (51) too tight.	Slacken adjusting link by decreasing bend.
4-speed knob does not select 16, 33, 45 or 78 when registering that speed.	Speed change wrongly adjusted.	Refer to "Adjustments of Speed Change" under Adjustments.
Record does not drop when changer cycles.	1. Record feed spindle broken.	a. Replace record feed spindle or complete center spindle.
	2. Record feed lever broken.	b. Replace record feed lever or the complete center spindle.

Two records drop at once.	1. Hole in record too large.	a. Replace record.
	2. Record keeper not fully down.	b. Carefully clean and remove burrs. Do not oil. It should fall under its own weight.
	3. The record control arm (23) not holding records level.	c. Hold control column securely and twist control arm until it will hold record stack parallel to top face of turntable.
Pickup does not locate correctly on records.	1. Rubber Buffer missing or misplaced at rear of Pickup Arm.	a. Replace rubber buffer in small hole in the side of the Pickup arm just behind the hinge. Slip eyelet over stem of rubber inside arm and clamp tightly.
	2. Pickup arm not adjusted properly.	b. See "Needle Set Down" under Adjustments.
	3. Needle bent.	c. Replace with new needle.
Pickup remains on record run-out groove, or on last groove.	1. No finishing run-out groove on record.	a. Check record for eccentric run out groove in center of record. Some old records and home recordings do not have this eccentric run out groove.
	2. Needle jumps out of groove in record.	b. Check that needle pressure is correct.
		c. Check that the record is not defective - the run out groove is often too shallow.
		d. The needle point might be damaged or affected by excessive accumulation of dust. Replace or clean.
		e. There may be binding in the pickup spindle bracket. Ensure that all moving parts are free and lightly oiled.
	3. Faulty Actuating Pawl and Friction Link.	f. When friction link has been moved towards center of gear wheel and then slowly pushed outwards it should also carry the Actuating Pawl outwards from the start of its movement. If the Pawl does not move freely with the link it will not engage the turntable boss to start cycle. Dismantle Link and Pawl, clean, reassemble and oil. Take care with tiny spring between the two parts.
Pickup does not move in when set down on record.	No run in groove on record.	Check that the record is of the standard type which has a run in groove from the outside edge of the record to the recorded section. Some old type records and home recordings do not have this run in groove.
Needle does not track across record properly.	1. Needle may be clogged with an accumulation of dust or be worn.	a. Clean foreign material from around needle.
		b. Check needle to see if the tip is broken or bent and replace if necessary.
	2. Pickup leads too tight.	Give the pickup leads enough slack to allow the tone arm to move freely across the record.
	3. Changer not level.	Ensure that the changer is level before use.
	4. Binding or friction in the pickup spindle bracket assembly.	Ensure that all moving parts and bearing surfaces in this assembly are free and lightly oiled.
	5. Needle pressure insufficient.	Check as under Adjustments.
	6. Actuating Lever not free on slide.	This lever must be absolutely free to slide in slots. Check for bending, rust, frays in slots, etc.
	7. Pickup hinge fouling pickup cover.	Bend hinge up to clear.

	8. Worn records or records with damaged groove.	Replace record.
	9. Pickup spindle bracket fouling tongue on stop plate in down position of pickup spindle bracket.	a. Clear dirt. b. Bend tongue to clear.
Pickup does not locate on pickup rest.	Tongue on Stop plate not locating in Pickup Spindle Bracket due to pin being out of line.	Adjust Pin by bending arm of main slide pressing so that the tongue will slip into the notch when the radial faces of the two pressings are against the pin.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	8M241A	Tone Arm Ass'y. (Includes Items 82 thru 94)	48	8M178	B.A. Plain Washer
2	8M79	Shipping Screw (2)	49	8M179	Spring (Pickup Raising)
3	8M82	On-Off-Reject Knob	50	8M180	Circlip
4	8M74	Diecast Cover	51	8M208	Adjusting Link
5	8M75	Tone Arm Clip Cover	52	8M219	Circlip
6	8M76	Tone Arm Clip	53	8M153	6 B.A. Locknut
7	8M77	Tone Arm Rest	54	8M154	Friction Link
8	8M70A	Baseplate Ass'y.	55	8M156	Actuating Pawl
9		"C" Washer	56	8M160	Cam Gear
10	8M60	Turntable	57	8M161	Actuating Pivot
11	8M58	"C" Washer, Motor Mounting (3)	58	8M162	Main Slide
12	8M57	Washer, Motor Mounting (3)	59	8M117	Reject Plate
13	8M48	Spring (4-Speed Pawl)	60	8M196	Spring (T.S. Return)
14	8M36	"C" Washer	61	8M93	4-Speed Pulley
15	8M30	Jockey Pulley Spindle Washer	62	8M56	Rubber Mounting (3)
16	8M31A	Jockey Pulley Ass'y.	63	8M118	Latch Plate
17	8M41A	Jockey Arm Ass'y.	64	8M228	Cut Off Arm
18	8M48	Spring (Jockey Arm)	65	8M218	Record Feed Link
19	8M46	Speed Change Pivot	66	8M210	Circlip
20	8M46/1	Washer	67	8M202	Spring (Reset Arm)
21A	8M43	Raising Lever	68	8M17	Spring (Stop Pawl)
21B	8M44	Speed Change Slide	69	8M24	Speed Change Link
22	8M38A	Speed Change Lever Ass'y.	70	8M27	Spring Washer
23	8M2A	Control Arm Ass'y.	71	8M26	Circlip
24	8M95	4-Speed Knob	72	8M55	Washer (Motor Mounting) (3)
25	8M6	Diecast Control Column (Part of 8M70A)	73	8M59	F.P. 10D Motor
26	8M52A	4-Speed Pawl	74	8M18A	Stop Bracket Ass'y.
27	8M12	Mounting Spring (3)	75	8M22	Switch Reject Arm
28	8M88	Switch Reject Arm	76	8M23	Circlip
29	8M90	Reject Link	77	8M106A	Center Spindle Ass'y.
30	8M194	Pick Up Spindle	78		Washer
31	8M182	Pick Up Spindle Bracket	79	8M108	Turntable Bearing
32	8M136A	Selector Column Ass'y.	80		Washer
33	8M183	Actuating Pin	81	8M94	Grub Screw 4 B.A. x 3/16" (2)
34	8M184	Stop Plate Bearing	82		Cartridge Mounting Bracket
35	8M186	Spring (Pickup Return)	83	8M244	No. 4 x 3/16" S.T. Screw
36	8M169	Main Sub Plate	84	8M258	Pickup Support Bracket
37	8M204	Reset Arm	85	8M255	No. 4 x 3/8" S.T. Screw
38	8M198	Toggle Slide	86	8M250	Damping Weight
39	8M195	Toggle Wire	87	8M251	Spire Fix (S.F.R. 1041/17/100)
40	8M224	Stop Lever	88	8M265	Pivot Pin
41	8M221	Circlip	89	8M263	Spring (Pickup Balance)
42	8M171	Circlip	90	8M173	Pickup Top Bearing
43	8M152	Actuating Lever	91	8M174	Spring (Pickup Overload)
44	8M175	Washer	92	8M262	Pickup Hinge
45	8M176	Spring (Gate Actuating)	93		Spacer
46	8M178	B.A. Plain Washer	94	8M261	6 B.A. x 3/8" R.H. Screw
47	8M177	Circlip	95	8M257	Pickup Height Adjusting Screw
			96	8M216	Spring



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

REGENCY
MODEL TR-4

REGENCY
MODEL TR-4

TRADE NAME	Regency Model TR-4
MANUFACTURER	Regency Div., I. D. E. A., Inc., 7900 Pendleton Pike, Indianapolis 26, Indiana
TYPE SET	Battery Operated Portable AM Transistorized Receiver

POWER SUPPLY 9 Volts DC RATING 9.4 MA @ 9 Volts DC
TUNING RANGE—BROADCAST 540KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open	Across ear-phone jack	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	535KC	Tuning gang fully closed	"	A4	"
3.		"	1630KC	Tuning gang fully open	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1500KC	Tune for maximum signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. With tuning gang fully open, frequency range should extend to 1630KC. If not, repeat step 3 and 4.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

REGENCY MODEL TR-4

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N229	Converter	2N438		2N229	
X2	2N229	1st IF Amplifier	2N438		2N229	
X3	2N229	2nd IF Amplifier	2N438		2N229	
X4	2N213	Output	2N439		2N213	Alternate Types: 2N229, 2N306

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	REGENCY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	18	10	300-473-9	PWE10020	NL20-15	TT15X20	ML20-15		TE-1157
C2	2	10	300-473-8	PWE10002	NL2-6	TT12X2	ML2-15		
C3	40	10	300-473-10	PWE10040	NL50-10	TT10X50	ML40-15		R2329 *

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	REGENCY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	20000		100-772-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	10000		20-075-22	BPD-01	DD-103	BYA6S1	ED-01	DC511	TG-S10	
C6	1000		095-71	BPD-001	DD-102	BYA6D1			5HK-D1	
C7	1000000		095-75							
C8	560000		095-74							
C9	1000		095-71	BPD-001	DD-102	BYA6D1			5HK-D1	
C10	120			BPD-00012	DD-121	L10T12	ED-120	UC-5312	5GA-T12	①
C11	560000		095-74							
C12	560000		095-74							
C13	1000		095-71	BPD-001	DD-102	BYA6D1			5HK-D1	
C14	39			N750-SI 39	TCN-39	C10Q39U	TC7-39			① N750
C15	20000		100-772-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C16	20000		100-772-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C17	1000		095-71	BPD-001	DD-102	BYA6D1			5HK-D1	

① Value may vary from 22MMF to 150MMF. Replace with original value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	REGENCY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2000Ω	½	100-596-3					Volume & Switch

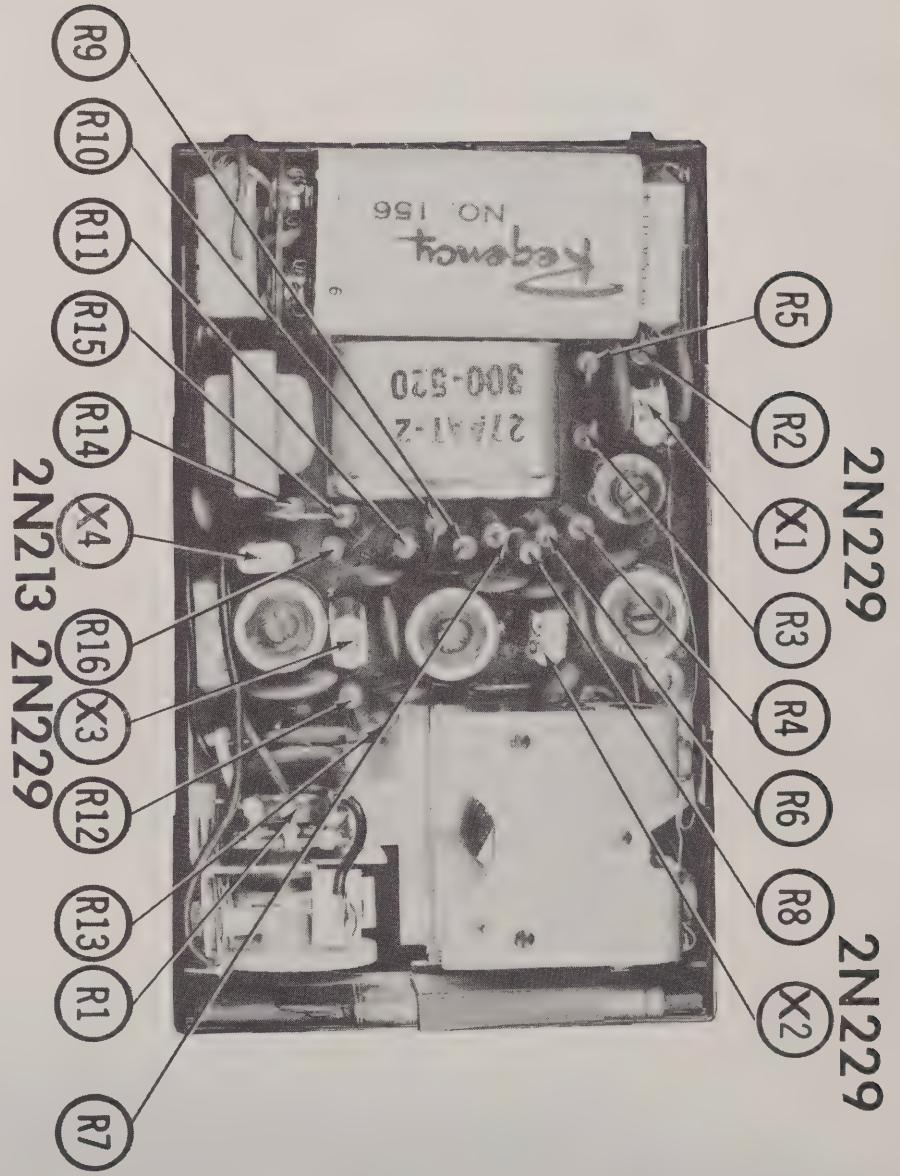
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REGENCY PART No.	NOTES
	OHMS	WATT		
R2	12K			
R3	56K			
R4	560Ω			
R5	2200Ω			
R6	68K			
R7	560Ω			
R8	470Ω			

ITEM No.	RATING		REGENCY PART No.	NOTES
	OHMS	WATT		
R9	2700Ω			
R10	68K			
R11	330Ω			
R12	100Ω			
R13	2700Ω			
R14	1000Ω 5%			
R15	5600Ω 5%			
R16	220Ω 5%			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1500Ω	15Ω	101-049						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	REGENCY PART No.	QUAM PART No.	
SP1	2 3/4"	PM	15Ω	300-520		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		REGENCY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	300-687-1				
L2	Osc. Coil	300-683-1				
L3	1st IF	300-682-1				
L4	2nd IF	300-682-2				
L5	3rd IF	300-682-3				

BATTERIES

ITEM No.	VOLTAGE	REGENCY PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	9	156		2U6		216				1604	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		REGENCY PART No.	CBS PART No.	SYLVANIA PART No.	
M2	CK706A	095-91	1N64G	1N64	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	REGENCY PART No.	NOTES
M3	Tuning Cap.	300-685-1	2 Gang (Ant. 8-130MMF)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	101-031	Tuning
Knob	300-435-5	On-Off-Volume
Printed Board	500-377	
Chassis	500-327	
Chassis	500-327A	Includes Antenna Support & On-Off Switch
Case	095-12-14	Includes Grill Cloth (State Color)
Carrying Case	300-474	Leather

DISASSEMBLY INSTRUCTIONS

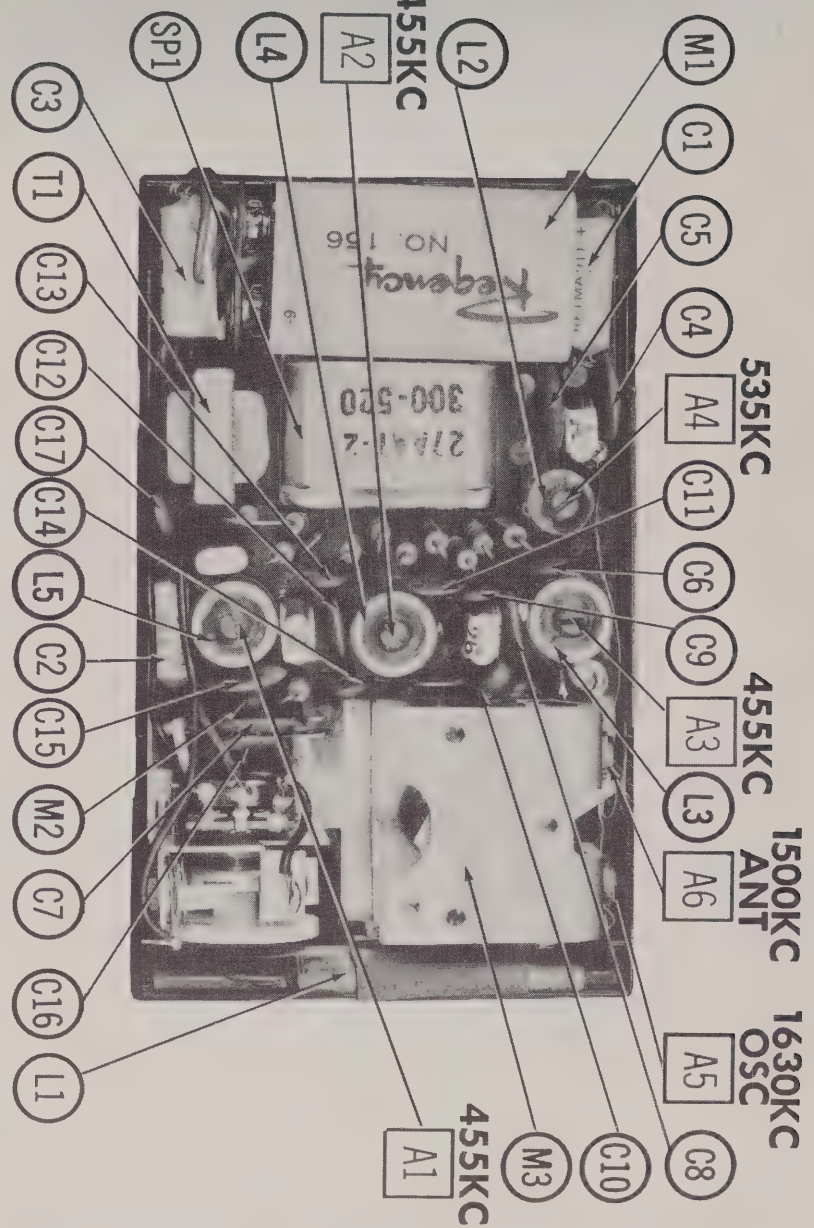
1. Turn tuning dial fully counterclockwise.
2. Remove screw from center of dial. Remove dial.
3. Remove screw located under tuning dial.
4. Remove chassis from case.
5. Straighten twisted lugs in the corners of the printed board.
6. Unsolder two connections, one to the tuning gang stator, the other to the twisted lug protruding from the chassis.
7. Printed board can now be moved to a position at right angle to the chassis.

SET 381 FOLDER 12

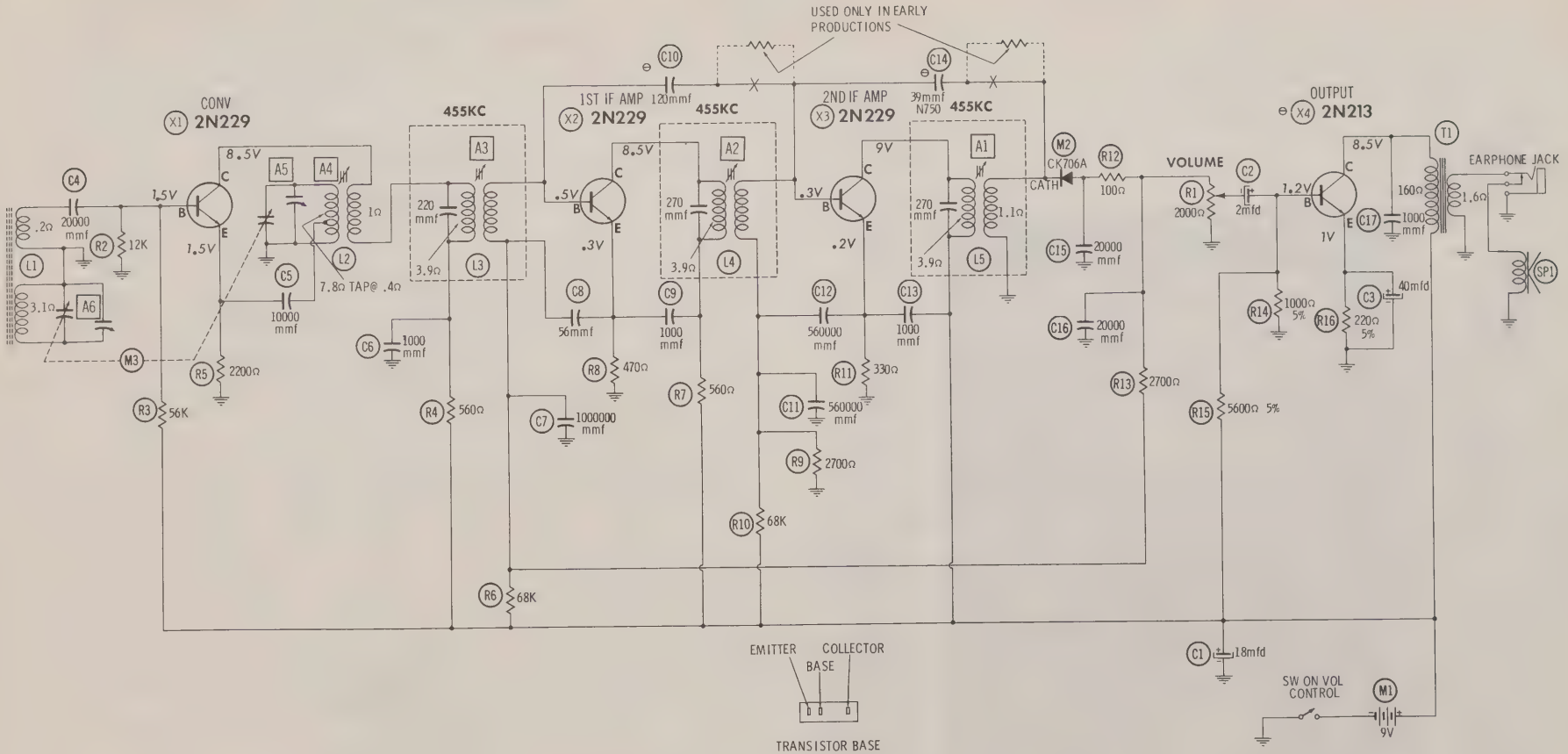
FOLDER 12

REGENCY MODEL TR-4

CHASSIS—TOP VIEW



REGENCY MODEL TR-4



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

SIVERTONE MODELS 8002, 8003 (Ch. 132.42600)

SIVERTONE MODELS 8002, 8003 (Ch. 132.42600)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SIVERTONE MODELS 8002, 8003 (Ch. 132.42600)

TRADE NAME	Silvertone Models 8002, 8003 (Ch. 132.42600)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .30 Amp. @ 117 Volts AC (29 Watts)
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.

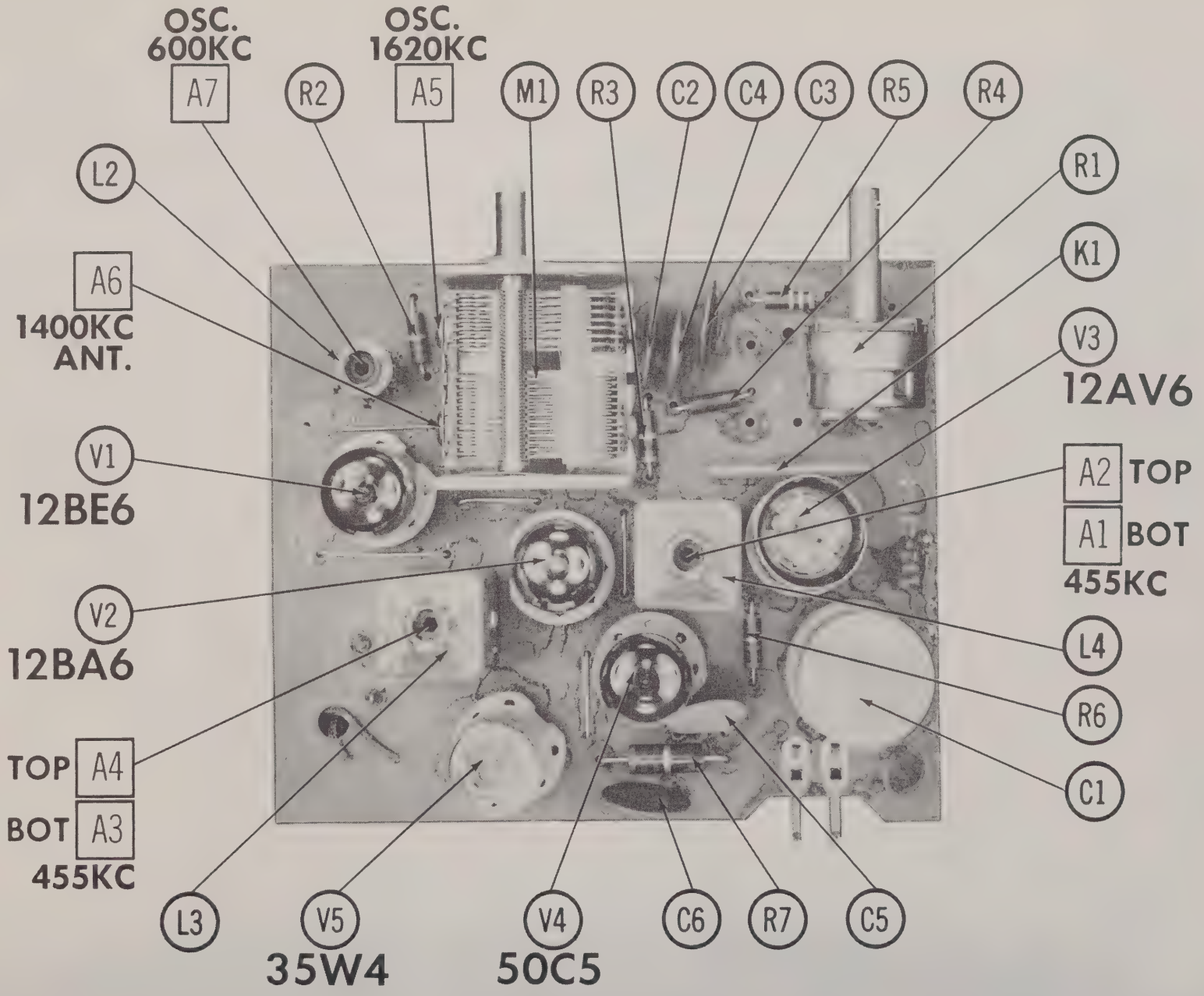
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"
4.		"	600KC	Tune to 600KC signal.	"	A7	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H179

FOLDER 13



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■ 50	150	43672	AFH2-15-05	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	▲ 30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C4	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	10000		43674-1	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	43671					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SILVERTONE PART No.	NOTES
	OHMS	WATT		
R2	22K		43687-223	
R3	100K		43687-104	
R4	2. 2Meg		43687-225	
R5	330K		43687-334	
R6	120Ω		43689-121	
R7	1200Ω	1	43688-122	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2600Ω	3-4Ω	42700-19	Z1101	A-3025	A-3332	24S53	S-12X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	43096	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Antenna	44834-1				Includes cabinet back and line cord.
L2	Osc. Coil	43644-1				
L3	Input IF	44282-1	16-6780	BC-356	13-PC9	
L4	Output IF	44282-1	16-6780	BC-357	13-PC10	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA	
K1	Audio Coup. Net	250MMF, 5000MMF, 5000MMF, 220MMF, 470K, 470K, 6. 8Meg	43743-2	Aerovox	PA-512
				Centralab	PCT-158
				Erie	1408-02
				Sprague	DT-5

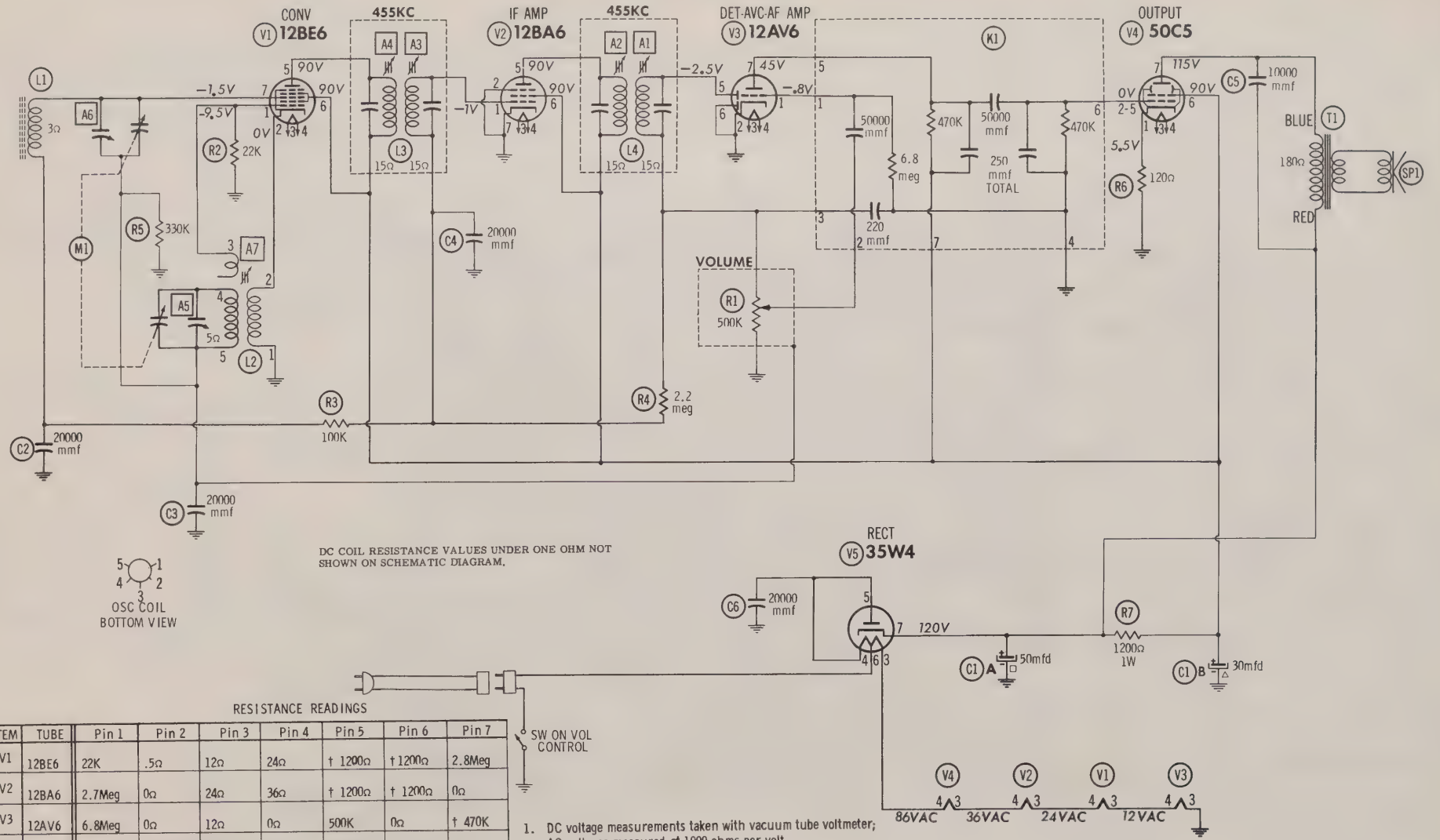
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Tuning Cap.	43987	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	44606-17	Volume, Ivory, Model 8002
Knob	44606-48	Volume, Brown, Model 8003
Knob	44605	Tuning
Cabinet	44597-17	Ivory, Model 8002
Cabinet	44597-48	Brown, Model 8003



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	12Ω	24Ω	† 1200Ω	† 1200Ω	2.8Meg
V2	12BA6	2.7Meg	0Ω	24Ω	36Ω	† 1200Ω	† 1200Ω	0Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	500K	0Ω	† 470K
V4	50C5	120Ω	470K	36Ω	80Ω	470K	† 1200Ω	† 180Ω
V5	35W4	TP	TP	80Ω	110Ω	110Ω	105Ω	20K(MIN)

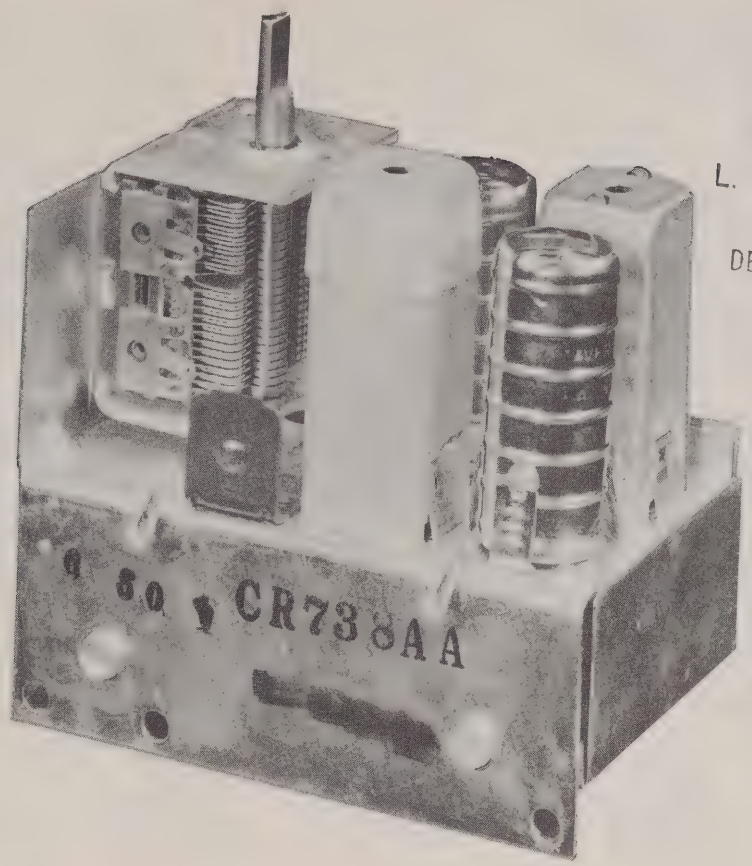
† MEASURED FROM PIN 7 OF V5.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

SPARTAN CHASSIS CR-738

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



SPARTAN
CHASSIS CR-738

TRADE NAME	Spartan Chassis CR-738
MANUFACTURER	Spartan Div., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	Externally Powered AM Tuner
TUBES (Two)	Types 12BE6 Converter, 12BA6 IF Amplifier
POWER SUPPLY	Externally Powered
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~ Mod)	Quiet point near mid-range	Across C1	A1, A2 A3, A4	Adjust for maximum output.
2	"	"	1620KC	Tuning gang fully open	"	A5	"
3		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4		"	600KC	600KC	"	A7	If necessary, adjust movable part of rod antenna for maximum output. Repeat steps 3 & 4.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H72R

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

SPARTAN
CHASSIS CR-738

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	

ITEM No.	USE	TYPE	NOTES
V2	IF Amplifier	12BA6	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	50000		250258-1	BPD-05	DF-503				5HK-S5	
C2	47		250218-17	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C3	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C4	.1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C5	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

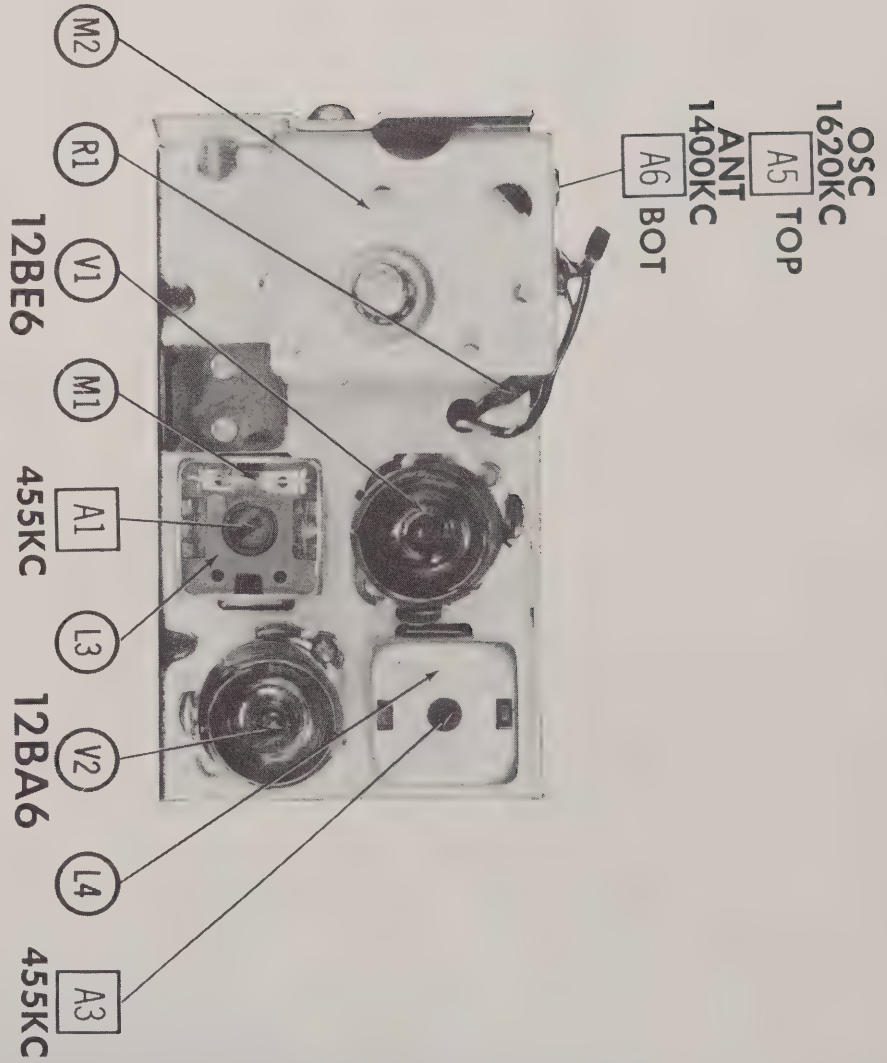
ITEM No.	RATING		SPARTAN PART No.	NOTES
	OHMS	WATT		
R1	100Ω		230104-50	
R2	1000Ω		230104-62	
R3	1000Ω		230104-62	
R4	22K		230104-78	

ITEM No.	RATING		SPARTAN PART No.	NOTES
	OHMS	WATT		
R5	120Ω		230104-51	
R6	3.3Meg		230104-104	
R7	220K		230104-90	
R8	47K		230104-82	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SPARTAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	360705-1				
L2	Osc. Coil	360702-1				
L3	Input IF	360611-1	16-6758	BC-352	12-C1	
L4	Output IF	360703-1				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SPARTAN PART No.	REPLACEMENT DATA
K1	Diode RF Filter	100MMF, 100MMF, 47K	250170-1	Aerovox PA-97-1 Centralab PC-50 Cornell-Dubilier 111TM1 Erie 1403-01 Sprague D-1

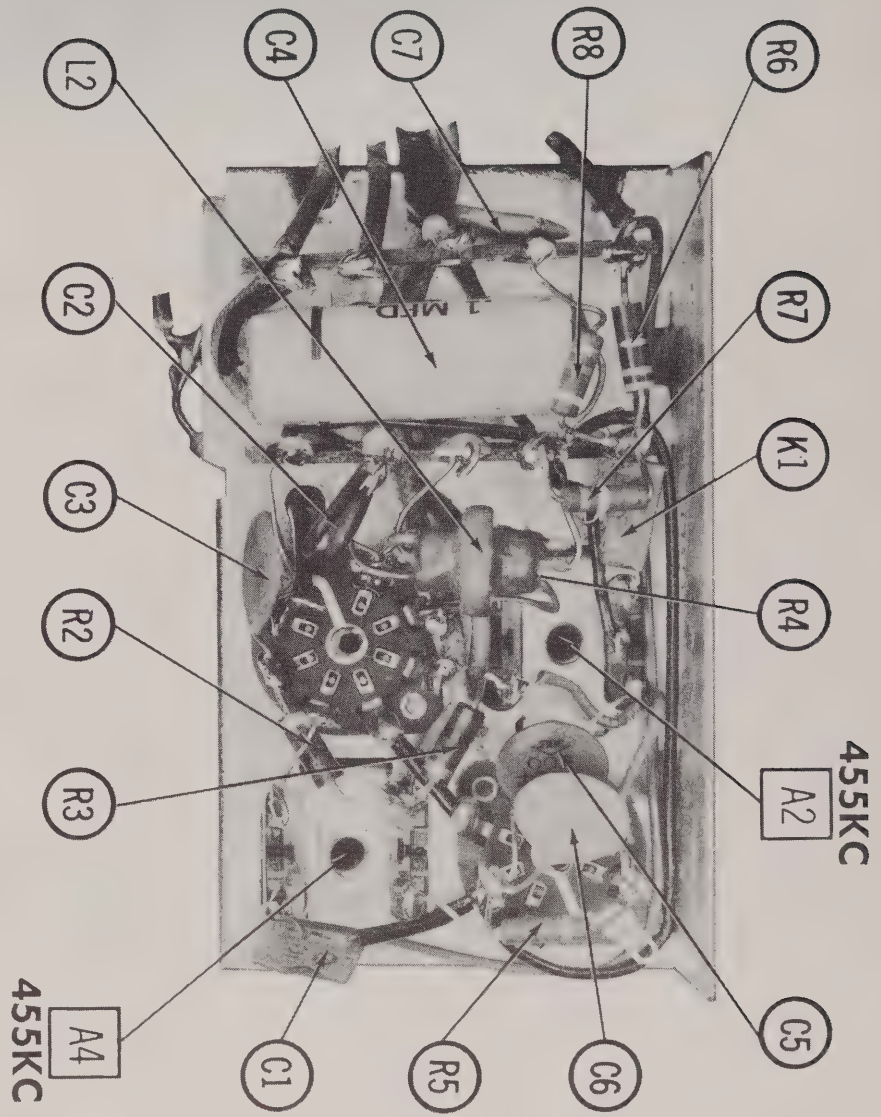
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SPARTAN PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N34A	530049-1	1N34A	1N34A	Audio Det. (Clip in)

MISCELLANEOUS

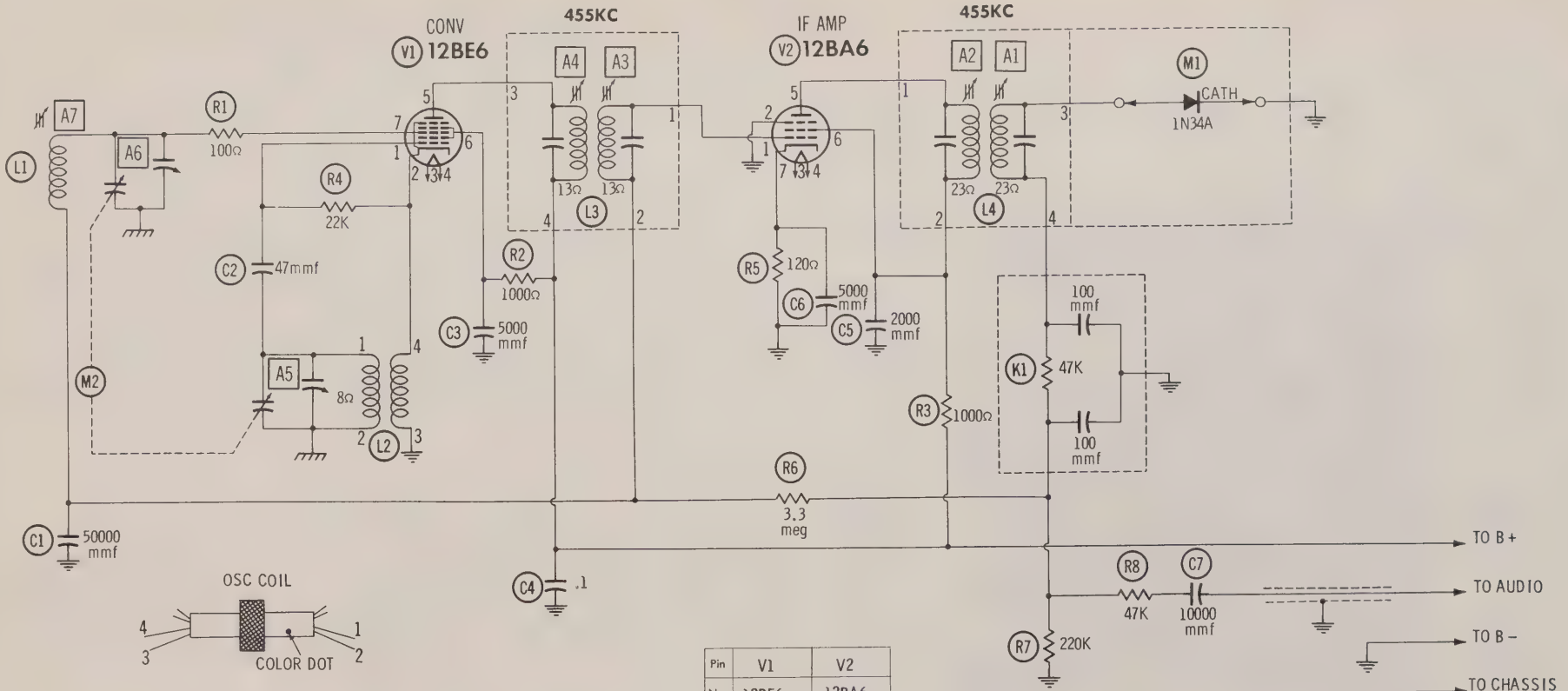
ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M2	Tuning Cap.	260140-1	2 Gang (Ant. 35-395MMF, Osc. 15-100MMF)

CHASSIS—BOTTOM VIEW



SPARTAN CHASSIS CR-738

SPARTAN CHASSIS CR-738



Pin No.	V1 12BE6	V2 12BA6
1	22K	3.3Meg
2	.7Ω	0Ω
3	0Ω	12Ω
4	12Ω	24Ω
5	† 13Ω	† 1000Ω
6	† 1000Ω	† 1000Ω
7	3.3Meg	120Ω

† MEASURED FROM JUNCTION OF C4 & R2
FILAMENT MEASURED FROM BROWN LEAD

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

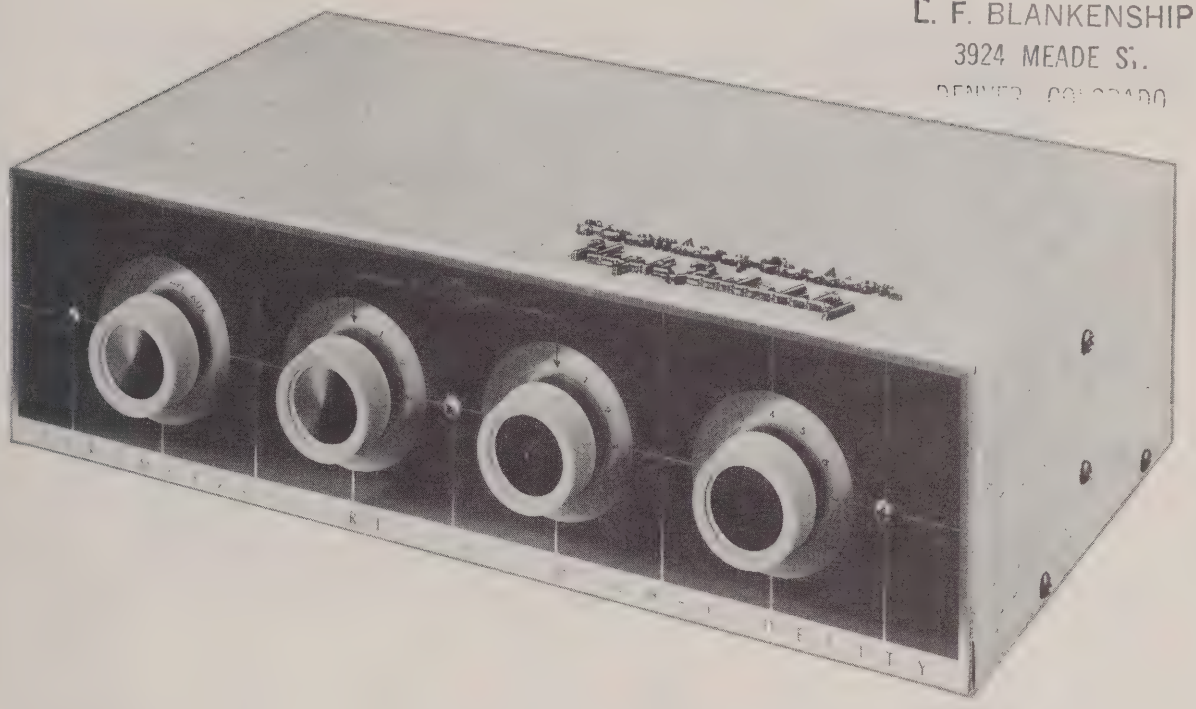
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

STROMBERG-CARLSON MODEL AR-411

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

STROMBERG-CARLSON
MODEL AR-411



STROMBERG-CARLSON
MODEL AR-411

TRADE NAME	Stromberg-Carlson Model AR-411
MANUFACTURER	Stromberg-Carlson Co., Service Dept., 1700 University Ave., Rochester 10, N. Y.
TYPE SET	AC Operated 4 Channel Audio Amplifier
TUBES (Six)	Types 12AT7 Phono Preamplifier, 12AX7 AF Amplifier, 6AV6 Phase Inverter, (2) 6CM6 Output, 5Y3GT Rectifier
POWER SUPPLY	105-125 Volts AC-50/60 Cycles RATING .68 Amp. @ 117 Volts AC (68 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

STROMBERG-CARLSON
MODEL AR-411

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AT7	
V2	AF Amplifier	12AX7	
V3	Phase Inverter	6AV6	
V4	Output	6CM6	
V5	Output	6CM6	
V6	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Stromberg-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	35590			FP447		Q-060	TVL-4705. 8
B	■30	350				TC47		MT-0550	
C	▲15	300							
D	50	50							
C2A	▲20	450	111619	AFH2-69	B0500	FP234	TMD-61	D-225	TVL-2935
B	■20	450							
C3	50	6	111615-000	PRS25V50	BBR50-6	TC29	TD-50-6	MMT-650	TVA-1100

FIXED CAPACITORS

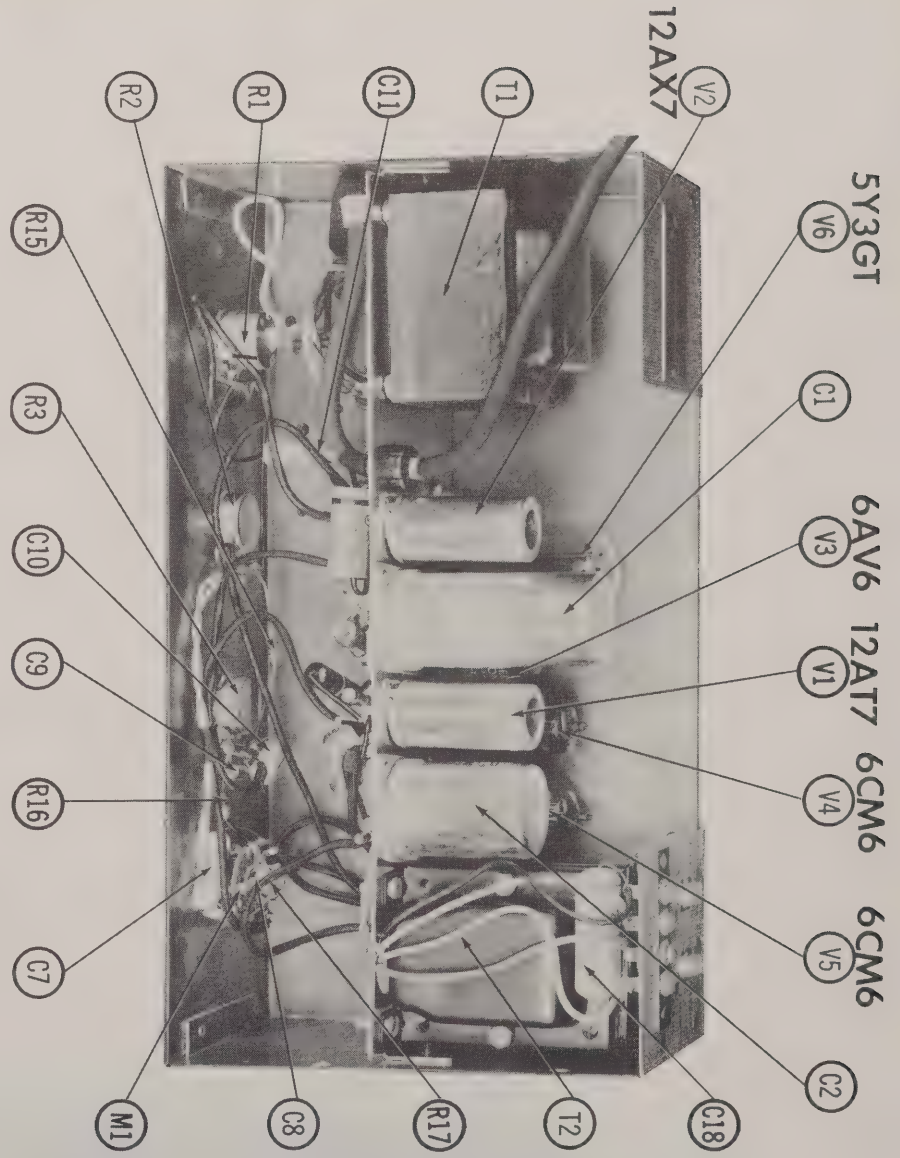
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Stromberg-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	.01	600		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C5	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C6	220			SI 220	D6-221	LT6T22	GP-220	UC-5322	5GA-T22	
C7	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C8	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C9	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C10	.0047	600		P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C11	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C12	27			SI 27	D6-270	LT6Q27	GP-27	UC-5427	5GA-Q27	
C13	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C14	220			SI 220	D6-221	LT6T22	GP-220	UC-5322	5GA-T22	
C15	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C16	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C17	.22	400		P488N-22		CUB4P22		GEM-4022	4TM-P22	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Stromberg-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	145638	B-60-S	A47-500K-S	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	
R2A	1Meg	½	145639	B-69	A47-1Meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	5Meg	½	145630	B-87	A47-5Meg-Z	Q13-141	U65	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	100Ω	2	145632	WN-101	A43-100	W11-084	R100L	Hum Adj. (Wire Wound)
B	Shaft			Not Req.	FKS-1/4	SK5-Kit	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Stromberg-Carlson PART No.	NOTES
R5	1Meg			
R6	1Meg			
R7	1Meg			
R8	47K			
R9	220K			
R10	5600Ω			
R11	390K			
R12	470K			
R13	220K			
R14	5600Ω			
R15	47K			
R16	100K			
R17	470K			
R18	220K			
R19	6800Ω			

ITEM No.	RATING OHMS	RATING WATT	Stromberg-Carlson PART No.	NOTES
R20	470K			
R21	6800Ω			
R22	56K			
R23	680K			
R24	3.3Meg			
R25	22K			
R26	47K			
R27	47K			
R28	100K			
R29	100K			
R30	250Ω	5		
R31	2000Ω	5		
R32	22K			
R33	10K			
R34	100K			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .68A	620VCT @ .170A	5VAC @ 2A	6.3VAC @ 1.8A	161798 ①					

① Used in series 105A and later. Part #161789 used in series 105 and earlier.

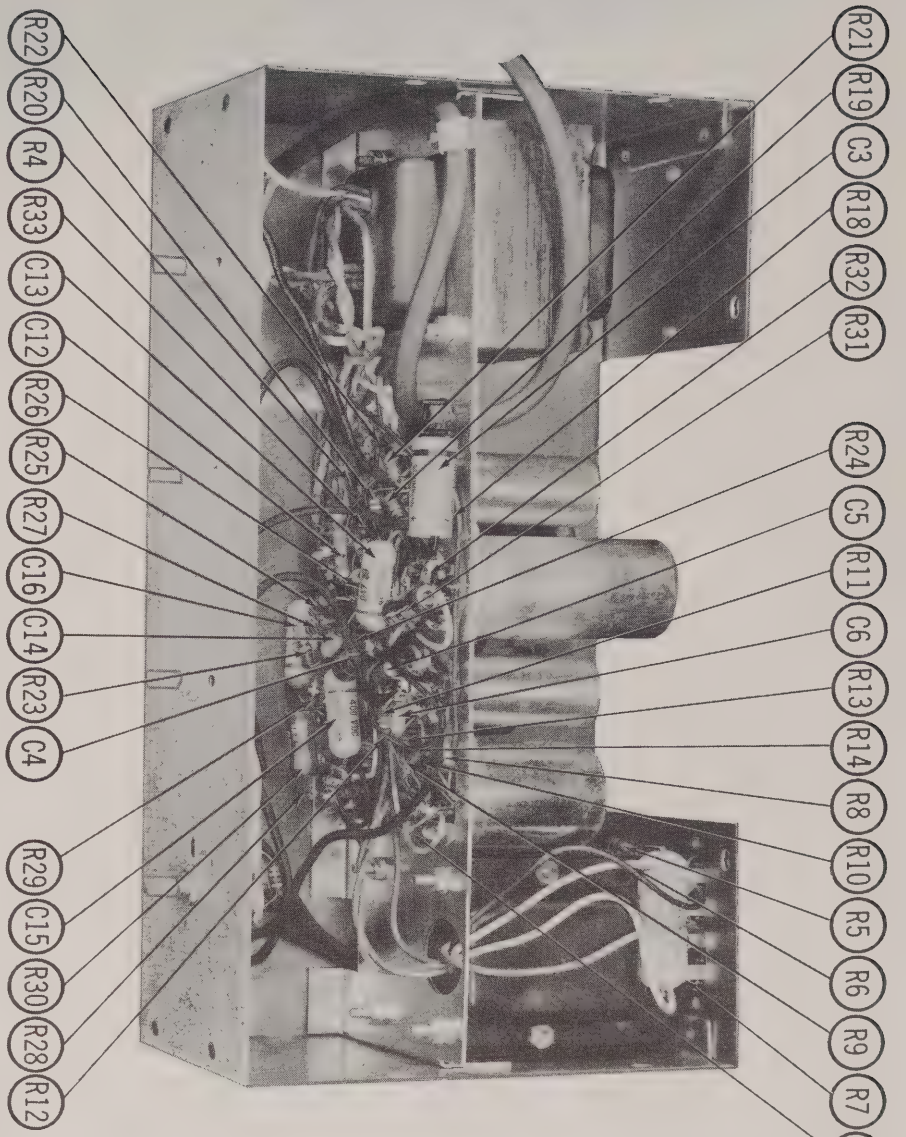
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6500Ω CT	16Ω Tap @ 8Ω, 4Ω	161345			A-3304	22S68		

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	Switch	158682	Selector (Rotary Wafer Type)

CHASSIS—BOTTOM VIEW

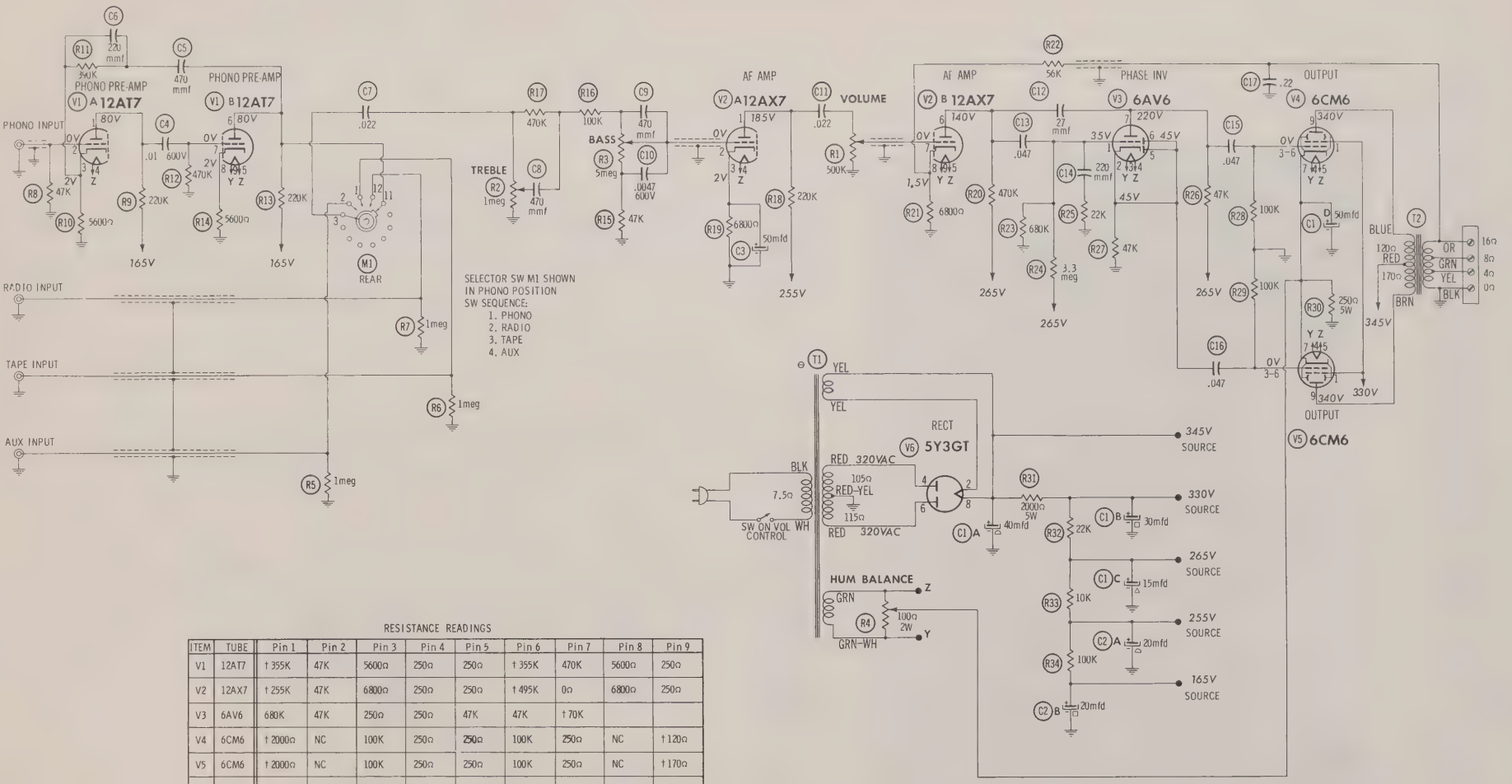


SET 381 FOLDER 15

FOLDER 15

STROMBERG-CARLSON MODEL AR-411

STROMBERG-CARLSON MODEL AR-411



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	†355K	47K	5600Ω	250Ω	250Ω	†355K	470K	5600Ω	250Ω
V2	12AX7	†255K	47K	6800Ω	250Ω	250Ω	†495K	0Ω	6800Ω	250Ω
V3	6AV6	680K	47K	250Ω	250Ω	47K	47K	†70K		
V4	6CM6	†2000Ω	NC	100K	250Ω	250Ω	100K	250Ω	NC	†120Ω
V5	6CM6	†2000Ω	NC	100K	250Ω	250Ω	100K	250Ω	NC	†170Ω
V6	5Y3GT	NC	20K(Min)	NC	105Ω	NC	115Ω	NC	20K(Min)	

ALL MEASUREMENTS TAKEN IN "PHONO" POSITION
† MEASURED FROM PIN 8 OF V6
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

ZENITH MODELS A600, A600L (Ch. 6A40, 6A41)

ZENITH MODELS A600, A600L (Ch. 6A40, 6A41)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ZENITH MODELS A600, A600L (Ch. 6A40, 6A41)

TRADE NAME	Zenith Models A600 (Ch. 6A40), A600L (Ch. 6A41)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	Three Power Portable Multi-Band AM Receiver
TUBES (Five)	Types 1U4 RF Amplifier, 1L6 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply In Pack Form (Adaptor Available For 220 Volts AC-DC Operation)
RATING	.15 Amp. @ 117 Volts AC (or) 60MA @ 9 Volts DC & 11.5MA @ 90 Volts DC (10 Watts)

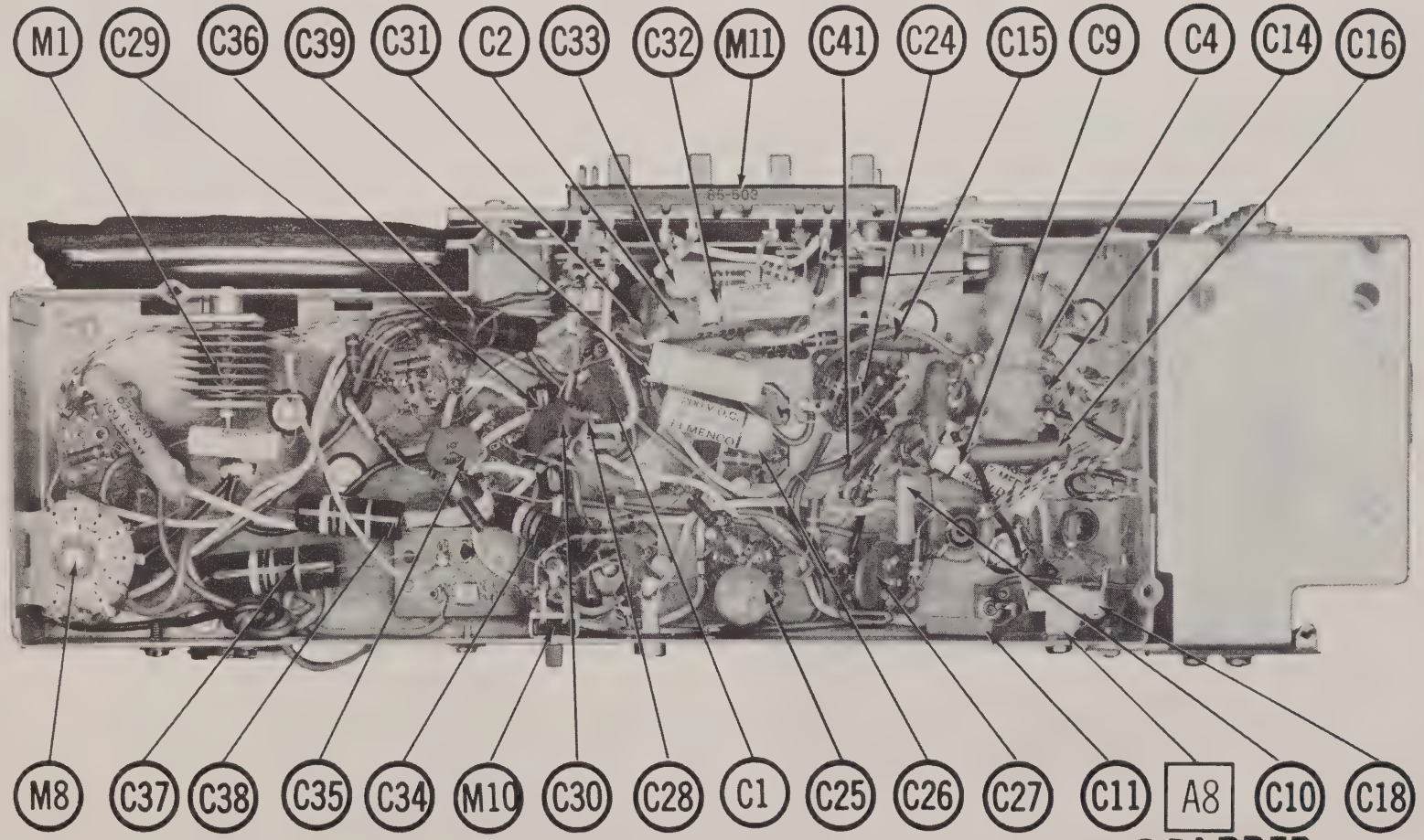
TUNING RANGE

540KC-1600KC	14.8MC-15.6MC
4MC-9MC	11.4MC-12.2MC
2MC-4MC	9.3MC-9.9MC
17.4MC-18.2MC	

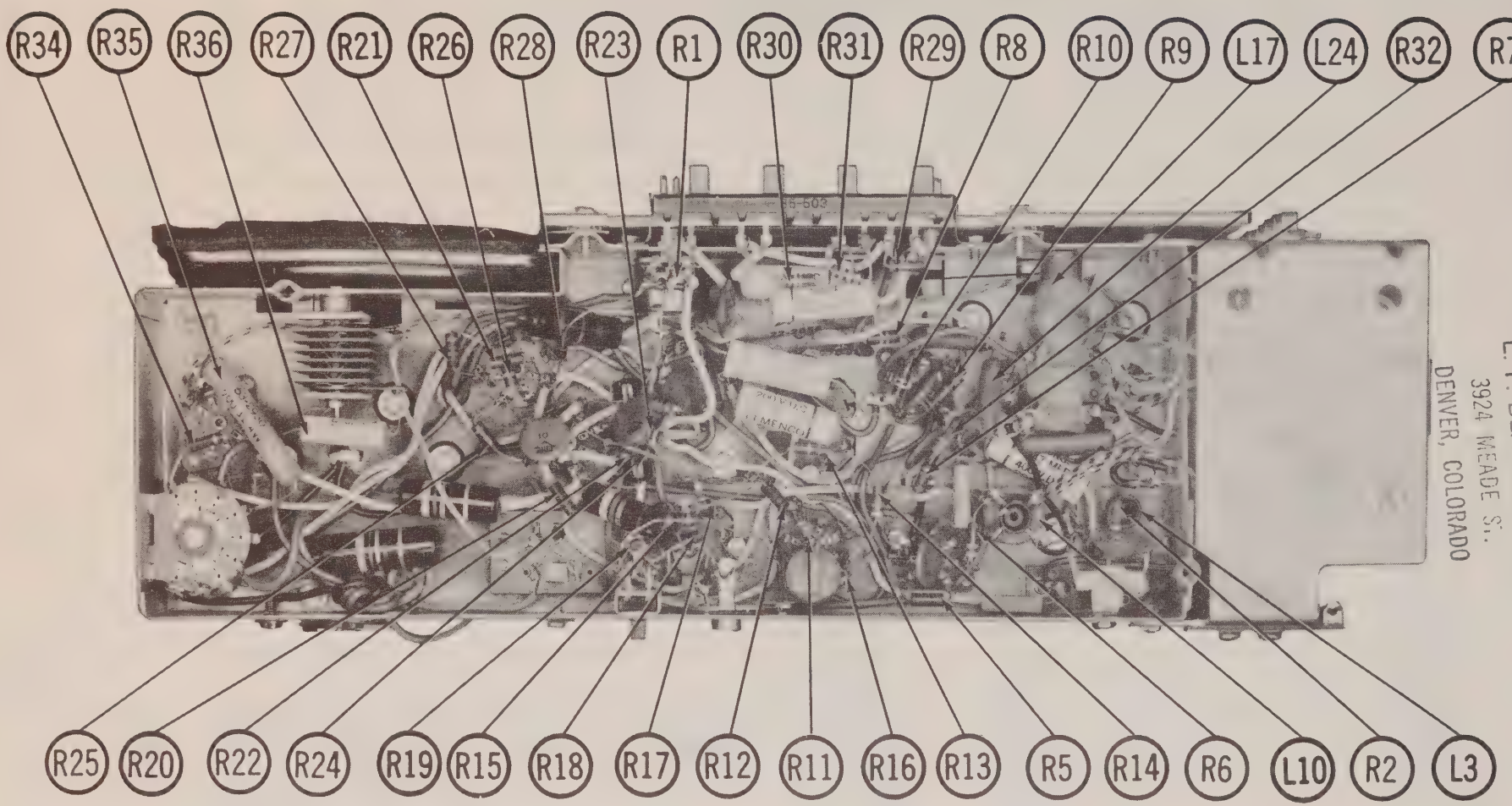
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

HI



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



PROPERTY OF
L. F. BLANKENSHIP.
3924 MEADE St.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	1U4	
V2	Converter	1L6	
V3	IF Amplifier	1U4	

ITEM No.	USE	TYPE	NOTES
V4	Det. -AVC-AF Amp.	1U5	
V5	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	150	22-1741	AFH4-23	D0300	FP408	TMQ-24	Q-090	TVL-4414
B	▲20	150							
C	■40	150							
D	200	10							
C2	12	150	22-2056	PRS150V12	BBR12-150	TC43	TD-12-150	FM-1512	TVA-1407

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	470		22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C4	4700		22-4	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C5	15		22-2329	NP0-SI 15	TCZ-15	CTA6Q15C	TCO-15		5TCC-Q15	NP0
C6	25		22-1392	NP0-SI 25	TCZ-25	CTA6Q25C	TCO-25	ZT-5425	5TCC-Q25	NP0
C7	50		22-1761	NP0-SI 50	TCZ-50	CTA6Q5C	TCO-50	ZT-545	5TCC-Q5	NP0
C8A B			22-2934							
C9	.047	400	22-1775	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	①
C10	270		22-2058	1468-00027	D6-271	5W5T27	ED-270	UC-5327	1FM-327	
C11	270		22-2058	BPD-00027	DD-271	L10T27	ED-270	UC-5327	5GA-T27	
C12	1000		22-2218	SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C13A B			22-2284							
C14	470		22-1390	1468-00047	DD-471	5W5T47	ED-470	UC-5347	1FM-347	
C15	250		22-2126							NP0
C16	120		22-2279	NP0-SI 120	TCZ-120	CTA6T12C	TCO-120		5TCC-T12	NP0
C17	120		22-2280	NP0-SI 120	TCZ-120	CTA6T12C	TCO-120		5TCC-T12	NP0
C18			22-2282							
C19	10		22-1953	NP0-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NP0
C20	120		22-2279	NP0-SI 120	TCZ-120	CTA6T12C	TCO-120		5TCC-T12	NP0
C21	2750		22-1433							
C22	4000		22-2935	BPD-004	D6-402	1W5D4	ED-004	UC-524	1FM-24	
C23A B			22-2933							
C24	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C25	3300		22-11	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C26	.022	200	22-2071	BPD-02	DD-203	CUB2S22	ED-02	GEM-2122	2TM-S22	
C27	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C28	50		22-1674	SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C29	.022	400	22-2072	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C30	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C31	1000		22-17	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C32	.022	200	22-2071	BPD-02	DD-203	CUB2S22	ED-02	GEM-2122	2TM-S22	
C33	.022	400	22-2072	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C34	.047	200	22-1778	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C35	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-S1	
C36	.01	600	22-1779	BPD-01	DD-103	CUB6SI	GP-10000	GEM-611	6TM-S1	
C37	.047	600	22-2569	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C38	.047	400	22-1775	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C39	.1	200	22-1777	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C40	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	
C41	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC511	5HK-SI	①

① Not used in some versions

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	S-22865				(Complete) Model A600
	Loop Stick	S-22892				(Complete) Model A600L
L2	Ant. Loading	S-23857	19-7047			42 Microhenries
L3	Ant. Coupling	S-23858				
L4	Ant. Coil	S-40870				4-9MC
L5	Ant. Coil	S-23856				2-4MC
L6	Ant. Coil	S-17718				17. 4-18. 2MC
L7	Ant. Coil	S-17719				14. 8-15. 6MC
L8	Ant. Coil	S-17720				11. 4-12. 2MC
L9	Ant. Coil	S-17721				9.3-9.9MC
L10	RF Coil	S-20844	14-1072	BC-382 ▲	72-RF ▲	540-1600KC
L11	RF Coil	S-40872				4-9MC
L12	RF Coil	S-23856				2-4MC
L13	RF Coil	S-17714				17. 4-18. 2MC
L14	RF Coil	S-17715				14. 8-15. 6MC
L15	RF Coil	S-17716				11. 4-12. 2MC
L16	RF Coil	S-17717				9.3-9.9MC
L17	Osc. Coil	S-17709				540-1600KC
L18	Osc. Coil	S-40871				4-9MC
L19	Osc. Coil	S-17731				2-4MC
L20	Osc. Coil	S-17726				17. 4-18. 2MC
L21	Osc. Coil	S-40860				14. 8-15. 6MC
L22	Osc. Coil	S-17728				11. 4-12. 2MC
L23	Osc. Coil	S-17729				9. 3-9. 9MC
L24	Osc. Coupling	S-14403	19-1003	BC-564	4608	4 Microhenries
L25	Input IF	95-1148	16-6758 *	BC-352 *	12-C1 *	
L26	Output IF	95-1149	16-6770 *	BC-355 *	12-C6 *	

▲ Drill mounting hole. * Use adapter plate.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.063	212-13	1101A	RS100	100A	
M2		212-9 ①				① Used in 220V adapter

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA				NOTES
			BURGESS "A-B" Pack	EVEREADY "A-B" Pack	MALLORY "A-B" Pack	RAY-O-VAC "A-B" Pack	
M3	"A" 9V "B" 90V	Z985X	G6B60	752	A-400	AB 995	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M4	1.5V	Z1	8R		1052P				23		Note 1

Note 1. Used for dial light power.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	63-2276	B-69	A47-1Meg-S	Q11-137	U54	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-2	SWE-20	76-2	US-27	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R2	4700Ω		63-1814	
R3	120Ω		63-1747	
R4	10Ω		63-1701	
R5	1Meg		63-1912	
R6	3300Ω		63-1807	
R7	150Ω		63-1750	
R8	68K		63-1863	
R9	1Meg		63-1912	
R10	100K		63-1869	
R11	100Ω		63-1743	
R12	2.2Meg		63-1926	
R13	5.6Meg		63-1943	
R14	4.7Meg		63-1940	
R15	1000Ω		63-1785	
R16	120Ω		63-1747	
R17	10Meg		63-1954	
R18	1Meg		63-1912	
R19	47K			

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R20	2.2Meg		63-1926	
R21	10Meg		63-1954	
R22	15Meg		63-1961	
R23	4.7Meg		63-1940	
R24	1Meg		63-1912	
R25	1Meg		63-1912	
R26	270Ω		63-1761	
R27	680Ω		63-1778	
R28	1500Ω		63-1792	
R29	100K		63-1869	
R30	18K		63-1838	
R31	27K		63-1845	
R32	330K		63-1891	
R33	100Ω		63-1744	
R34	560Ω		63-1775	
R35	700Ω	4	63-2930	
R36	130Ω	3	63-2839	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.1	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	7000Ω	3-4Ω	95-1369						
	Turns Ratio								
	PRI.	SEC.2							
	15:	1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3-4Ω	49-748 ①	52A21	① Part #S-22197 includes speaker & T1

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

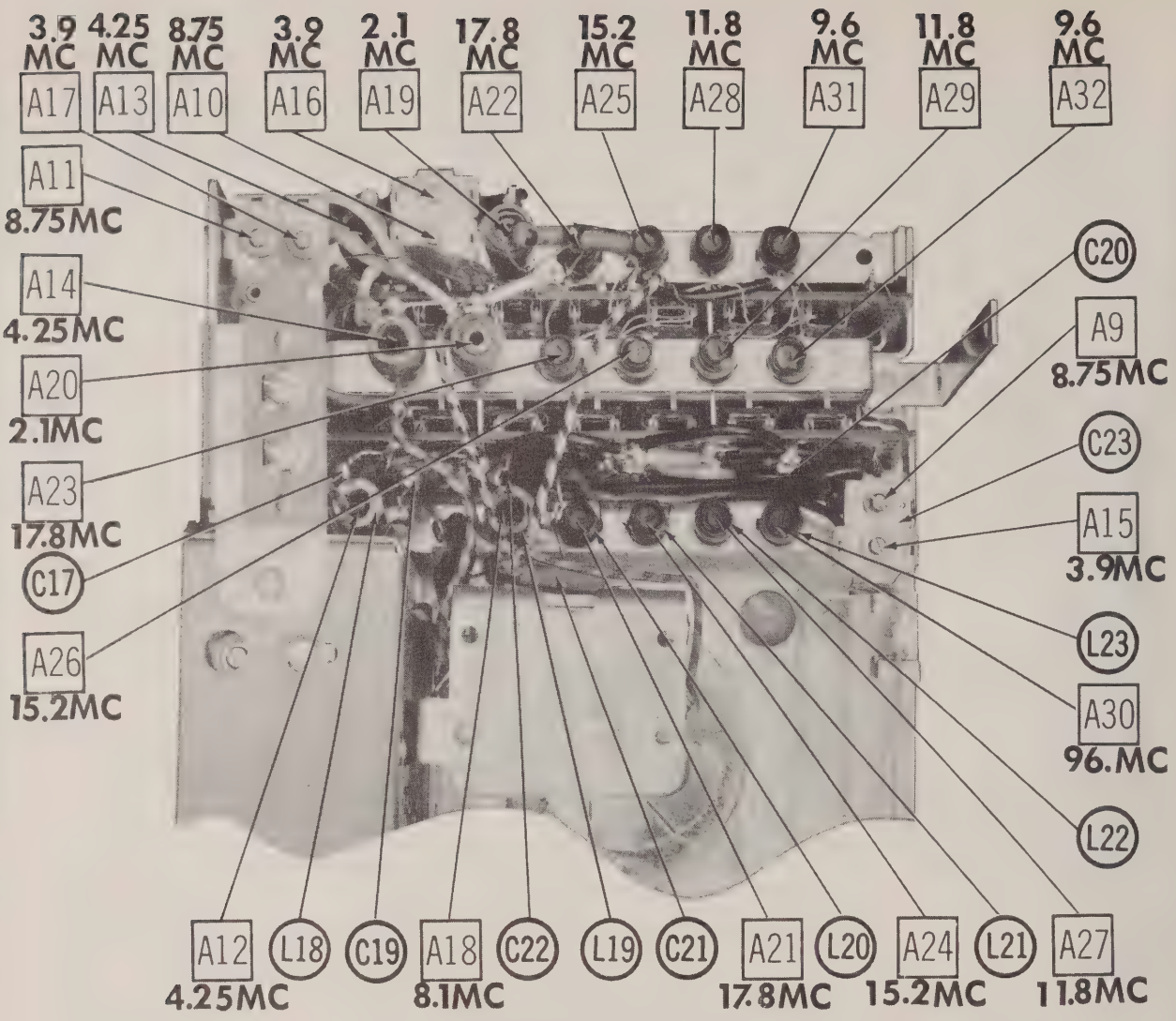
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M5	Dial Light	100-171	#222
M6	Tuning Gang	22-2520	3 Gang (Ant. 16-462MMF, RF 16-462MMF, Osc. 16-462MMF)
M7	Switch	85-542	Dial Light (Slide Type SP), Model A600
	Switch	85-550	Dial Light (Slide Type SP), Model A600L
M8	Switch	85-520	Power Change Over (Slide Type)
	Switch	85-543	Power Change Over (Slide Type) (Alternate)
M9	Switch	S-40856	Bandswitch Brkt. & Coil Assy. (Includes Bandswitch Part #85-502
M10	Switch	85-495	Phono-Radio (Slide Type)
M11	Switch	85-503	Tone

CABINETS & CABINET PARTS

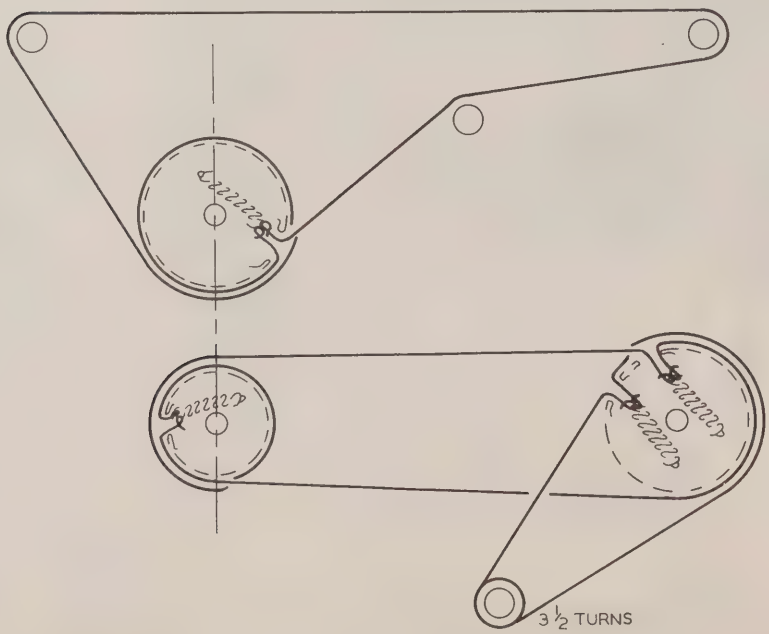
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-912	Bandswitch, (7 used) Model A600
Knob	46-1288	Bandswitch, (7 used) Model A600L
Knob	46-913	Tuning, Model A600
Knob	46-1289	Tuning, Model A600L
Knob	46-1242	Volume, Model A600
Knob	46-1290	Volume, Model A600L
Dial Scale	26-575	Chassis 6A40
Dial Scale	26-576	Chassis 6A41
Dial Pointer	59-300	
Antenna	S-15802	Telescoping Assy., Model A600
Antenna	S-21433	Telescoping Assy., Model A600L
Cabinet	14-1633	Model A600
Cabinet	14-1675	Model A600L

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO



TUNER REAR VIEW



DIAL CORD STRINGING

ALIGNMENT INSTRUCTIONS

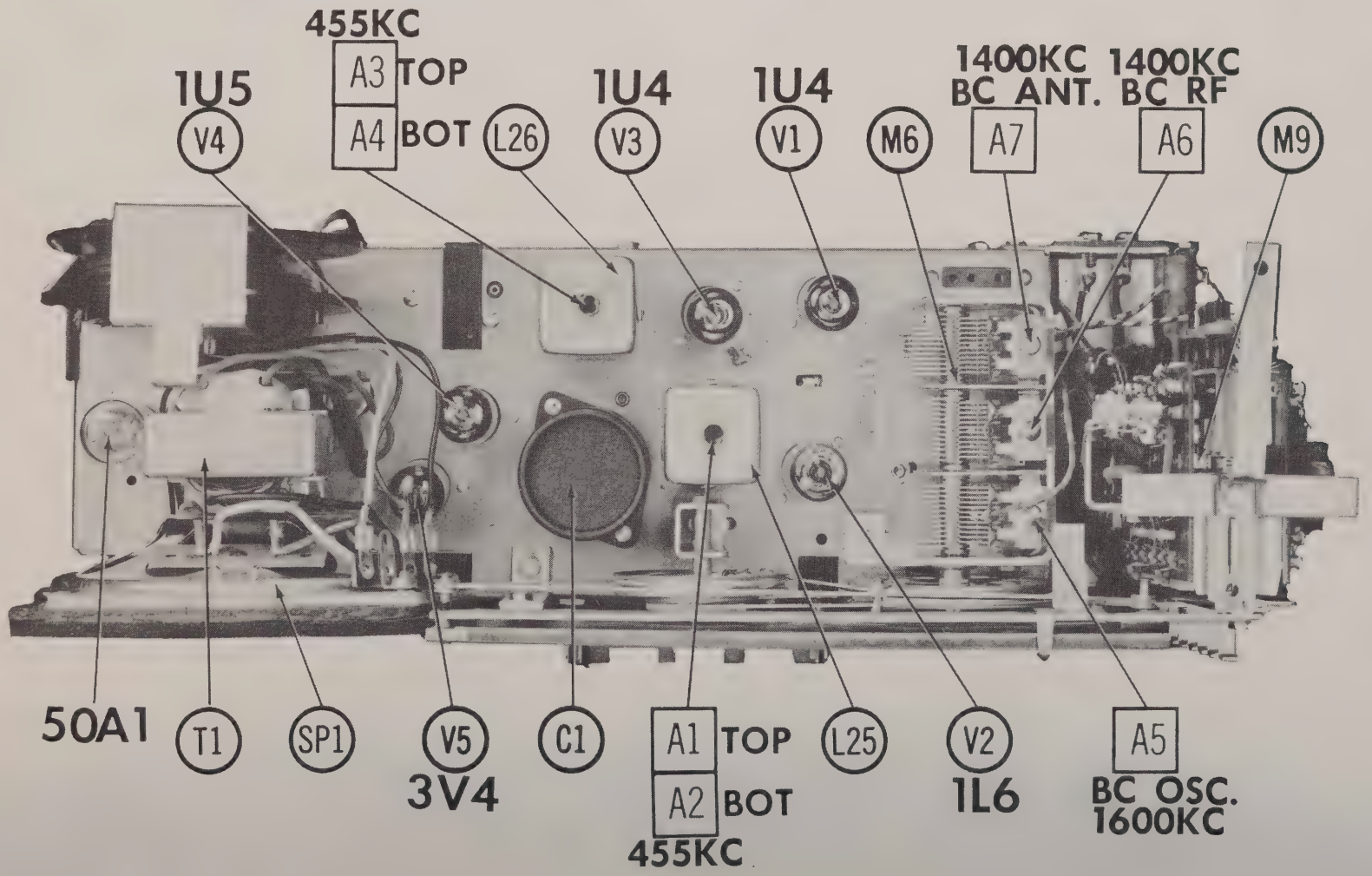
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
With tuning gang fully closed, set dial pointer to "O" on Logging Scale.
If A5, A6, A7 are adjusted after step 3 it will be necessary to repeat steps 4 thru 12.

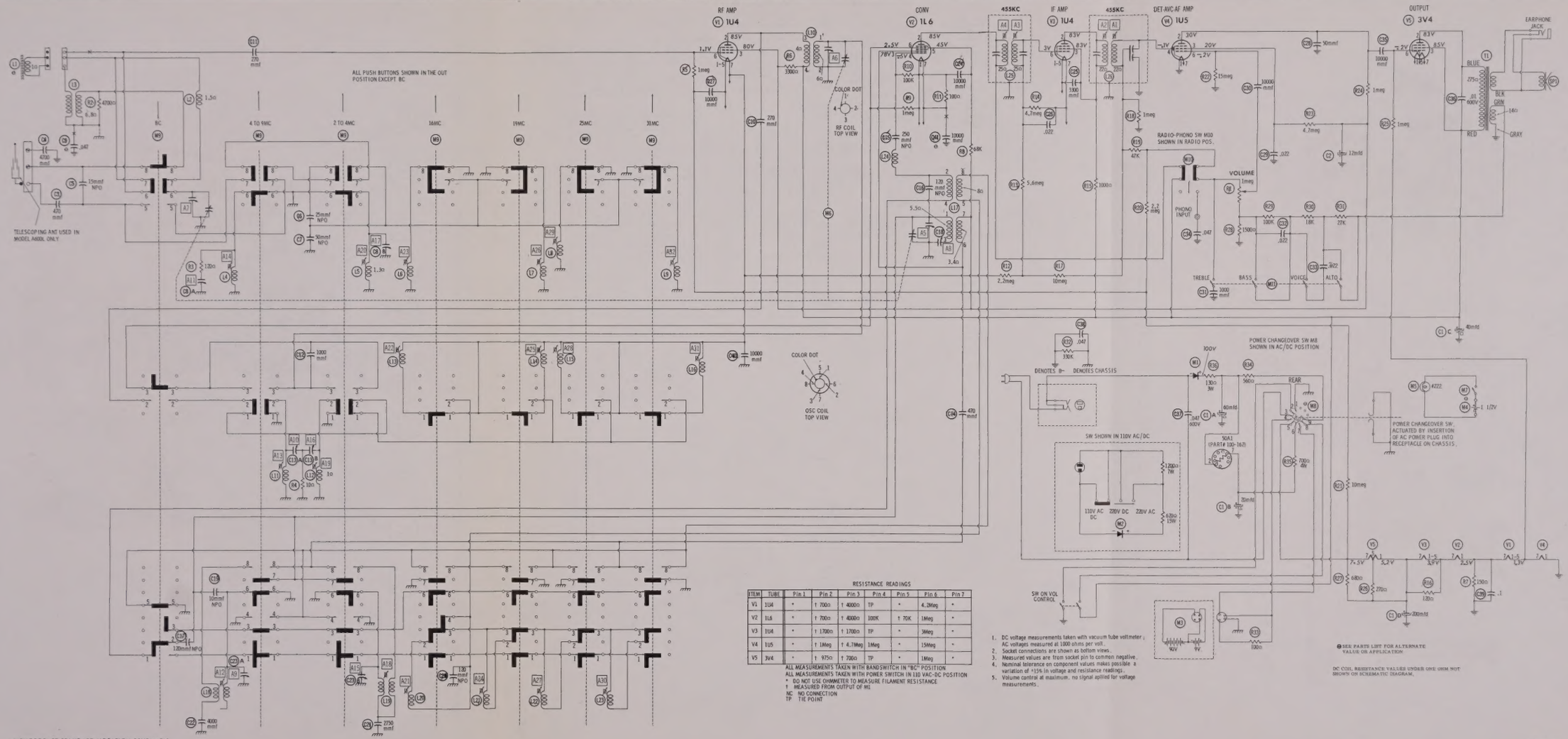
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1L6 (V2). Low side to pin 1 (B-Filament) of 1L6 (V2).	455KC (400~ Mod)	BC	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. (Zenith alignment tool Part #68-19 may be used.)
2.		Loop (Loosely coupled to BC antenna).	1600KC	"	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6, A7	"
4.		"	600KC	"	600KC	"	A8	Adjust for maximum output while rocking tuning gang.
5.		3 feet of wire approximately 1 foot from fully extended SW antenna rod.	8.75MC	4-9MC	8.75MC	"	A9, A10, A11	Adjust for maximum output.
6.		"	4.25MC	"	4.25MC	"	A12, A13 A14	Adjust for maximum output while rocking tuning gang. Repeat steps 5 & 6.
7.		"	3.9MC	2-4MC	3.9MC	"	A15, A16, A17	Adjust for maximum output.
8.		"	2.1MC	"	2.1MC	"	A18, A19, A20	Adjust for maximum output while rocking tuning gang.
9.		"	17.8MC	16M	17.8MC	"	A21, A22 A23	"
10.		"	15.2MC	19M	15.2MC	"	A24, A25 A26	"
11.		"	11.8MC	25M	11.8MC	"	A27, A28 A29	"
12.		"	9.6MC	31M	9.6MC	"	A30, A31 A32	"

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

A1 IF Trans.	A17 Ant. Trimmer (2-4MC)
A2 IF Trans.	A18 Osc. Coil (2-4MC)
A3 IF Trans.	A19 RF Coil (2-4MC)
A4 IF Trans.	A20 Ant. Coil (2-4MC)
A5 Osc. Trimmer (BC)	A21 Osc. Coil (16M)
A6 RF Trimmer (BC)	A22 RF Coil (16M)
A7 Ant. Trimmer (BC)	A23 Ant. Coil (16M)
A8 Osc. Padder (BC)	A24 Osc. Coil (19M)
A9 Osc. Trimmer (4-9MC)	A25 RF Coil (19M)
A10 RF Trimmer (4-9MC)	A26 Ant. Coil (19M)
A11 Ant. Trimmer (4-9MC)	A27 Osc. Coil (25M)
A12 Osc. Coil (4-9MC)	A28 RF Coil (25M)
A13 RF Coil (4-9MC)	A29 Ant. Coil (25M)
A14 Ant. Coil (4-9MC)	A30 Osc. Coil (31M)
A15 Osc. Trimmer (2-4MC)	A31 RF Coil (31M)
A16 RF Trimmer (2-4MC)	A32 Ant. Coil (31M)



CHASSIS TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1U4	*	↑ 700Ω	↑ 4000Ω	TP	*	4.2Meg	*
V2	1L6	*	↑ 700Ω	↑ 4000Ω	100K	↑ 70K	1Meg	*
V3	1U4	*	↑ 1700Ω	↑ 1700Ω	TP	*	3Meg	*
V4	1U5	*	↑ 1Meg	↑ 4.7Meg	1Meg	*	15Meg	*
V5	3V4	*	↑ 975Ω	↑ 700Ω	TP	*	1Meg	*

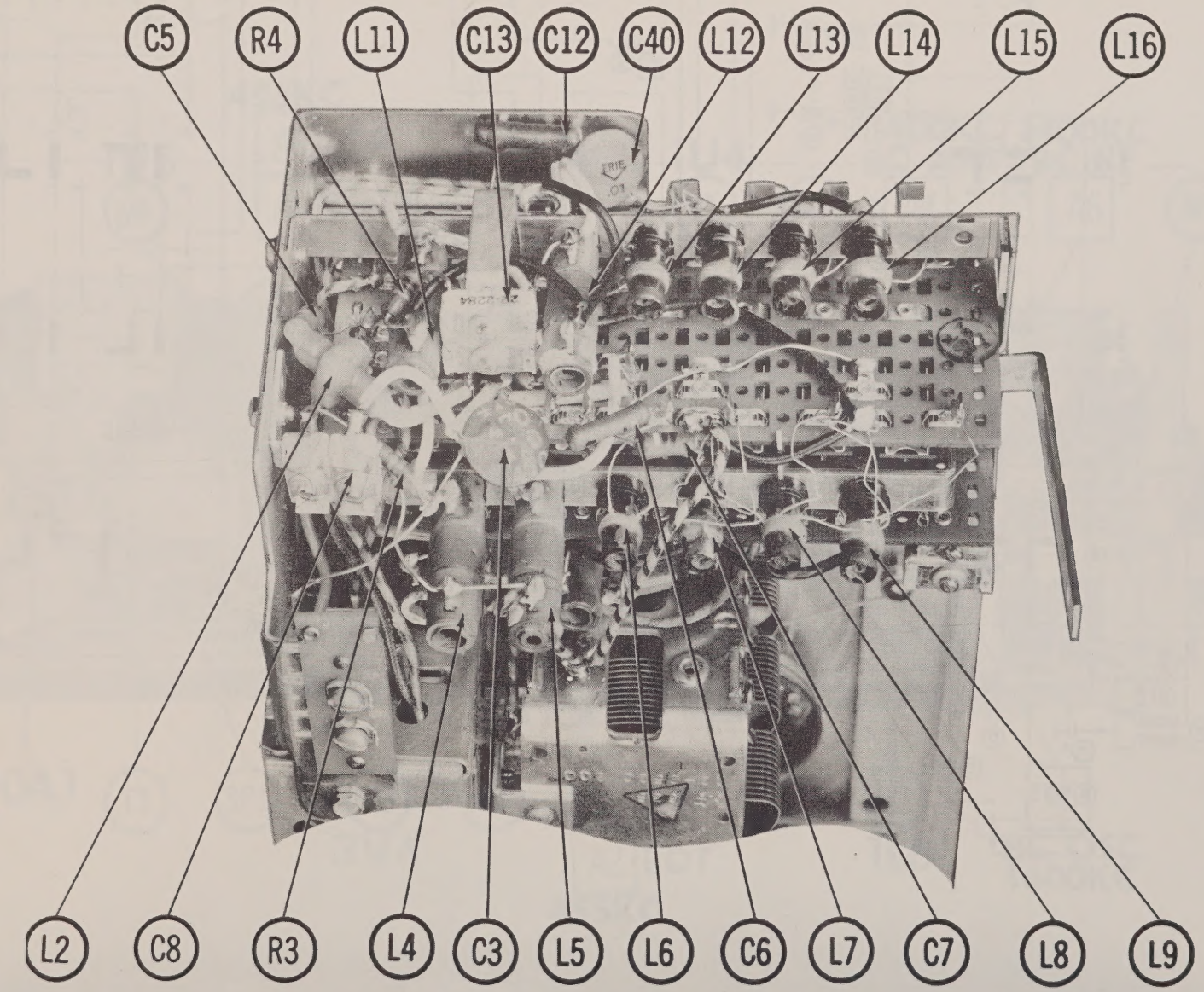
ALL MEASUREMENTS TAKEN WITH BANDSWITCH IN "BC" POSITION
ALL MEASUREMENTS TAKEN WITH POWER SWITCH IN 110 VAC-DC POSITION
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
↑ MEASURED FROM OUTPUT OF M1
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

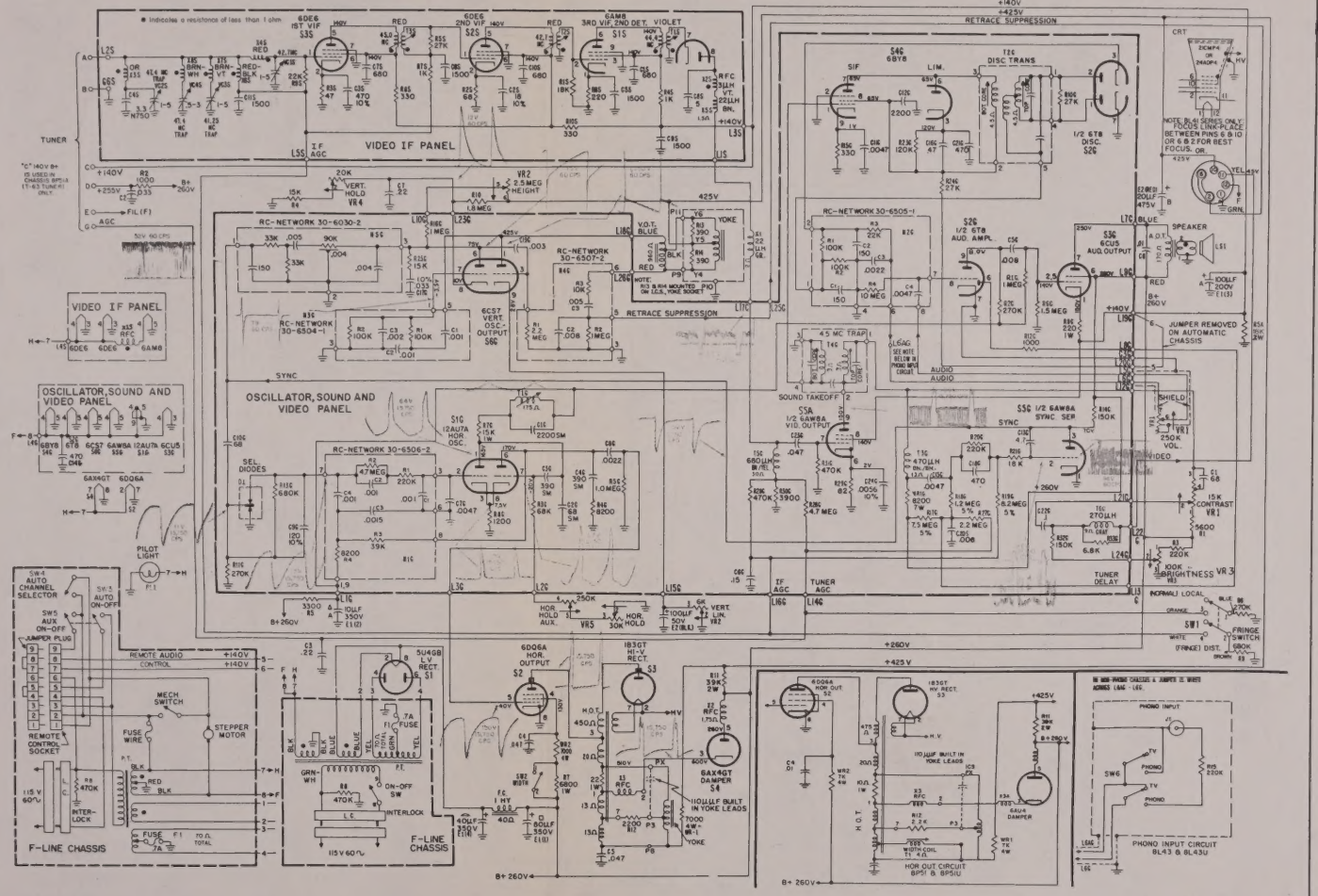
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

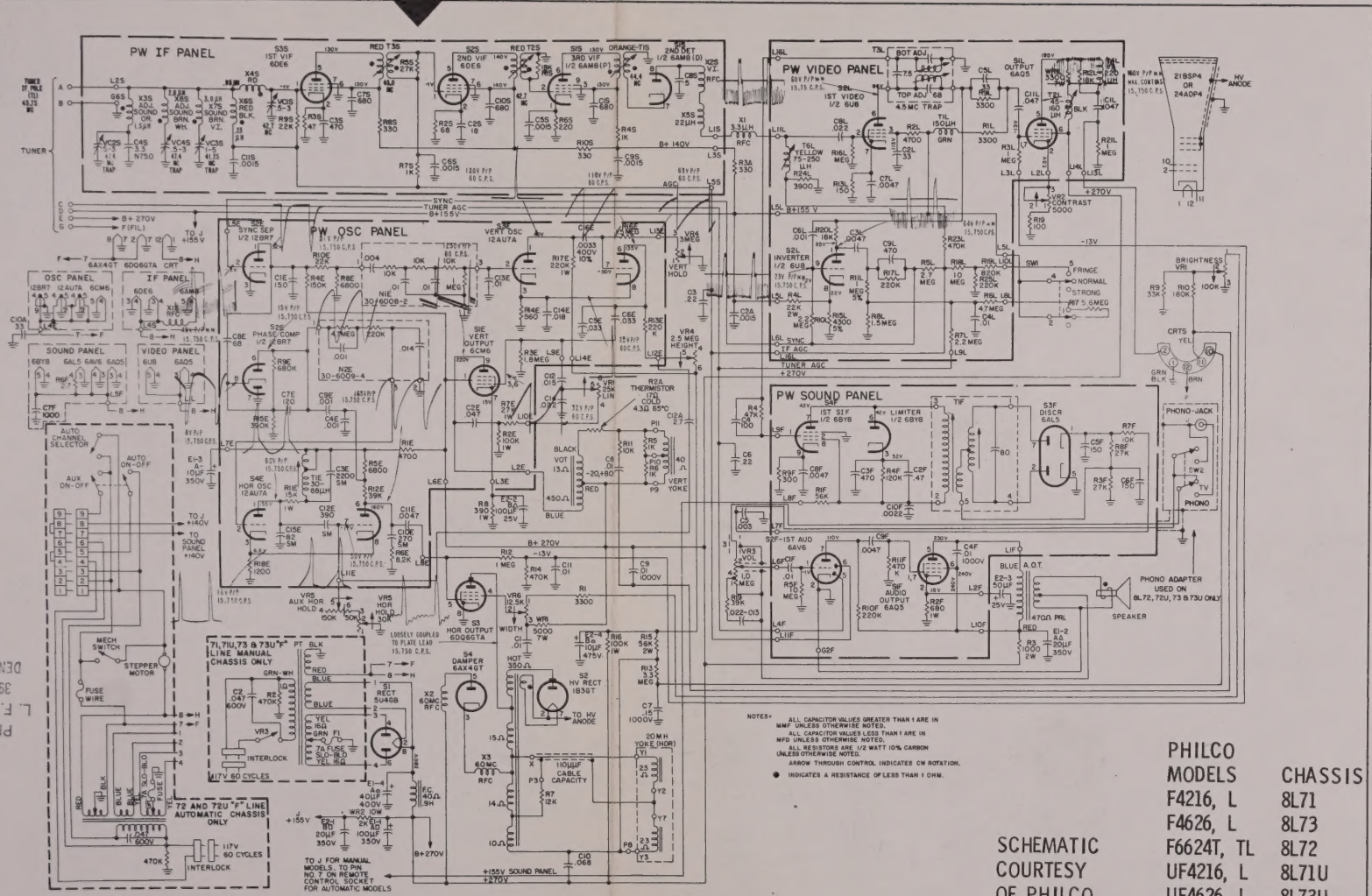


TUNER-REAR VIEW

PHILCO MODELS	CHASSIS
F4210, E, L	8L41
F4212, L	8L41
F4214STM, STN	8L42
F4620SL, SM	8L41
F4622, L	8L43
F4624	8L43
F4632	8L43
F6206SL, SM	8P51, A
F6620SL	8P51, A
UF4210, E, L	8L41U
UF4212, L	8L41U
UF4214STM, STN	8L42U
UF4620SL, SM	8L41U
UF4622, L	8L43U
UF4624	8L43U
UF4632	8L43U
UF6206SL, SM	8P51U
UF6620SL, SM	8P51U



SCHEMATIC COURTESY OF PHILCO CORPORATION



NOTES:
- ALL CAPACITOR VALUES GREATER THAN 1 ARE IN MMF UNLESS OTHERWISE NOTED.
- ALL CAPACITOR VALUES LESS THAN 1 ARE IN MFD UNLESS OTHERWISE NOTED.
- ALL RESISTORS ARE 1/2 WATT 10% CARBON UNLESS OTHERWISE NOTED.
- ARROW THROUGH CONTROL INDICATES CW ROTATION.
- ● INDICATES A RESISTANCE OF LESS THAN 1 OHM.

PHILCO MODELS	CHASSIS
F4216, L	8L71
F4626, L	8L73
F6624T, TL	8L72
UF4216, L	8L71U
UF4626, L	8L73U
UF6624T, TL	8L72U

SCHEMATIC COURTESY OF PHILCO CORPORATION

PROPERTY OF L. F. BLANKENSHIP 3924 MEADE ST., DENVER, COLORADO